TENDING THE YOUNG

FROM THE T.G.H. DRAKE COLLECTION
ON THE HISTORY OF PÆDIATRICS

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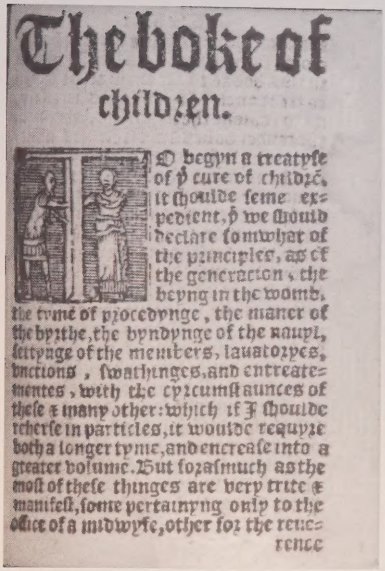
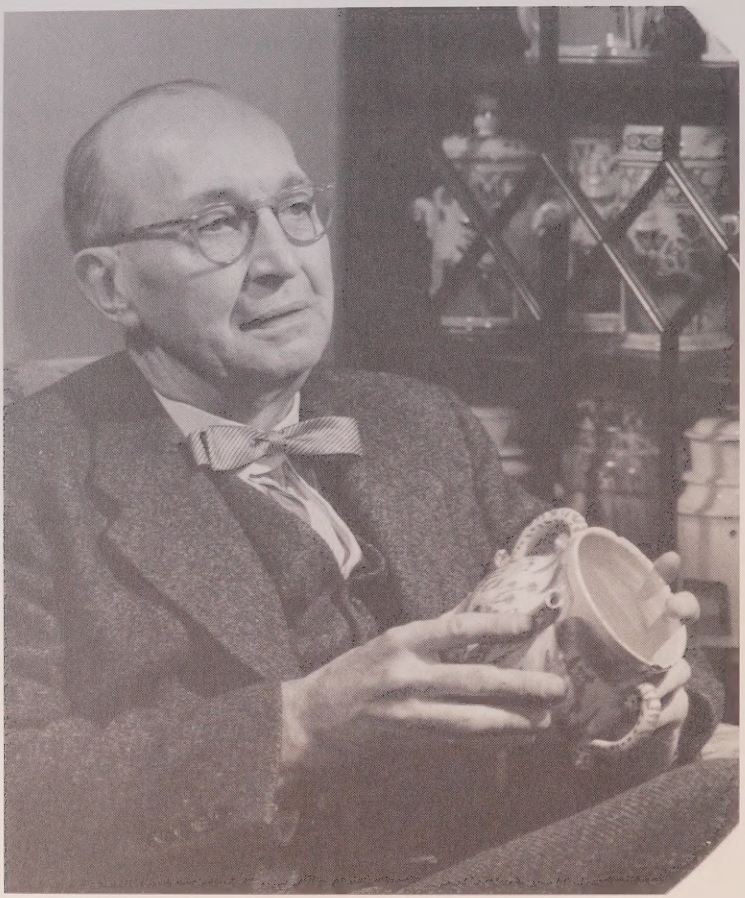


The boke of
children.

TO begyn a treatyse
of ẏ cure of childrē,
it shoulde seme ex=
pedient, ẏ we should
declare somwhat of
the principles, as of
the generacion, the
beyng in the womb,
the tyme of procedynge, the maner of
the byrthe, the byndynge of the nauyl,
settynge of the members, lauatoryes,
vnctions, swathinges, and entreate=
mentes, with the cyrcumstaunces of
these & many other: which if I shoulde
reherse in particles, it woulde requyre
both a longer tyme, and encrease into a
greater volume. But forasmuch as the
most of these thinges are very trite &
manifest, some pertainyng only to the
office of a midwyfe, other for the reue=
rence

Opening page of Thomas Phaer,
The Boke of Children, *1550.*



TENDING THE YOUNG

FROM THE T.G.H. DRAKE COLLECTION ON

THE HISTORY OF PÆDIATRICS

An Exhibition
held at the Thomas Fisher Rare Book Library
University of Toronto
22 April – 15 August 1997

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Cover illustration from E. Rhösslin, *De Partu Hominis*. Franc[ofurti] 1554.

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FOREWORD

The T.G.H. Drake Collection on pædiatrics has been well known to historians of medicine and other scholars for many years as one of the world's great research resources in its field. With this exhibition we are able to reveal to a much wider audience the interdisciplinary range and scope of the collection. This is important at a time when research in the humanities increasingly crosses the traditional subject boundaries. In the exhibition and the catalogue, Philip Oldfield emphasizes that in this collection there are to be found not only the classics of pædiatrics, which one would expect, but also books relating to the history of education, art, and literature throughout the whole of Europe. It is hoped that one result of the exhibition will be to stimulate more research based on the Drake Collection.

This exhibition is also a tribute to the taste and technique of Dr. Drake as a collector, one who was able to assemble an internationally significant resource for research. Medical doctors have, over the centuries, been great collectors of books and manuscripts. One thinks immediately of Askew, Mead, Hunter, and Osler, and T.G.H. Drake was part of this glorious tradition. The Thomas Fisher Rare Book Library, and other institutions like it, exist because of the efforts of dedicated collectors, and it is a privilege and pleasure to acknowledge another one of them.

On behalf of the Thomas Fisher Rare Book Library, I would like to thank the Associated Medical Services, Inc./Hannah Institute for the History of Medicine, Mead Johnson Canada, and the Friends of the Fisher Library for funding this catalogue.

Richard Landon
Director

ACKNOWLEDGEMENTS

This exhibition has benefited greatly from the assistance and advice of a number of people. I am deeply indebted to Felicity Pope, Curator of the Canadian Museum of Health and Medicine, for the friendly and expert advice she has given on the selection of artefacts and prints displayed in the exhibition. It is a pleasure to acknowledge the co-operation of the Canadian Museum of Health and Medicine in lending the valuable artefacts that have added considerably to the display. I am grateful to my colleagues Anne Jocz, Katharine Martyn, Edna Hajnal, and Gayle Garlock, for their assistance in proof-reading early drafts of the catalogue, and for their suggestions regarding the text. Thanks are also due to the following people: to Maureen Morin for the digital processing of the illustrations; to Richard Miller for designing the catalogue; to Emrys Evans and Linda Joy for their customary skill and judgement in mounting the exhibition. Last, but not least, I wish to pay special tribute to Mrs. Nina Drake, whose advice and encouragement throughout the planning stages of the exhibition have been invaluable, and whose devotion to the memory of her husband has been truly inspirational.

Philip Oldfield

INTRODUCTION

To the thousands of children he tended, T.G.H. Drake is regarded with appreciation as a kind and compassionate pædiatrician. To countless mothers he is remembered with gratitude as the co-inventor of the infant formula Pablum. To others he is renowned as a great collector of medical artefacts, which form a significant part of the Canadian Museum of Health and Medicine, currently being developed at The Toronto Hospital. This third aspect of Dr. Drake's activities has recently received the attention of Mary Spaulding and Penny Welch in their splendid book *Nurturing Yesterday's Child*. Closely related to Dr. Drake's interest in antiques of pædiatric interest, but less well known, was his excellent collection of books. Like the artefacts, the books were placed under the curatorship of the Academy of Medicine in 1961. When the Academy closed its doors in September 1991, Drake's library, together with the Academy's other rare book collections, came to the Fisher Library, where today they reside as a valuable complement to the Jason A. Hannah Collection in the History of Medicine.

The T.G.H. Drake Collection is one of the most comprehensive libraries on the history of pædiatrics in the world. Consisting of approximately 1500 printed books and pamphlets, it is particularly rich in pre-1800 imprints. It includes five incunabula (fifteenth-century books), three of which (Celsus, Bagellardo, and Metlinger), are displayed in the exhibition. Among the fifty or so sixteenth-century works, are early printings of the writings of the ancient medical authorities (Hippocrates, Celsus, Galen), and of the mediæval physicians of Byzantium (Oribasius, Ætius, Paul of Ægineta), and of the Islamic lands (Rhazes and Avicenna, Avenzoar). The collection also boasts the first works on pædiatrics printed in German (Metlinger), English (Rhösslin, Phaer), French (Vallambert), and Dutch (Blankaart). Other major landmarks of pædiatrics, often in several editions, are also to be found in the collection: Walter Harris', *De Morbis Acutis Infantum* (eight editions); Nicolas Andry's *L'Orthopédie*, and William Cadogan's *Essay upon Nursing* (three editions each); and Michael Underwood's *A Treatise on the Diseases of Children* (fourteen editions). The literature devoted to rickets from the seventeenth and eighteenth centuries is especially rich. The

lengthy debate on inoculation against smallpox in the eighteenth century, leading up to Edward Jenner's development of the technique of vaccination, is also well documented. There are also important clinical accounts, many of them first descriptions, of such infant diseases as whooping-cough (Baillou), scarlet fever (Sydenham), chorea (Sydenham), chicken-pox (Heberden), diphtheria (Home), meningitis (Whytt), mumps (Hamilton), and poliomyelitis (Underwood). Among the eighteenth-century material is a wealth of publications on the London Foundling Hospital, and of French laws relating to the establishment of hospitals, the care of foundlings, and the regulation of wet-nursing, much of it in manuscript.

Not all the books in the collection are devoted specifically to the care and treatment of the diseases of children. A number of books treat the related topics of pedagogy, children's costume, games and pastimes. Others deal with the question of sanitation and public hygiene, against the background of bubonic plague, and other epidemic diseases, which although not exclusively pædiatric in nature, nevertheless took an enormous toll of children's lives. Drake was also a keen collector of the caricatures, medical and otherwise, of James Gillray, Thomas Rowlandson, and George Cruikshank. Individual prints by these artists are part of the Museum's collections; the bound volumes have remained with the book collection.

The purpose of the present exhibition is to pay tribute to Dr. Drake as a book collector and historian of pædiatrics, and to display some of the most significant works from his outstanding collection. Considerations of space and manageability have meant limiting the scope of the materials selected to pre-1800 imprints. Yet even within this restriction, it is impossible to do full justice to a collection of such wealth and depth, and many important books in the early history of pædiatrics have had to be omitted. Items from the collection mentioned in the text of the catalogue, but not included in the exhibition, have been marked with an asterisk. Wherever appropriate, the books displayed have been complemented by artefacts from the Canadian Museum of Health and Medicine.

The descriptions contained in the catalogue make no claim to originality, and have relied heavily on a variety of sources, the most useful of which are listed at the end of the catalogue. The approach taken in describing the books is broadly historical and bibliographical,

and is aimed at the general reader. Medical terminology has, therefore, been kept simple; terms that may not be generally familiar are explained in parentheses.

THEODORE GEORGE HARWOOD DRAKE

CASE I

O.B.E., M.B., F.R.C.P. (C), 1891-1959

Theodore Drake was born in 1891 in the small town of Webbwood, located to the west of Sudbury in Northern Ontario, the only child of a railway engineer, George W. Drake, and his wife, Annie. The family moved to North Bay, where Theodore received his primary and secondary education. In 1909 he entered the Faculty of Medicine at the University of Toronto, obtaining his M.B. degree in 1914. After a year of internship at Toronto General Hospital, he enlisted in the Royal Army Medical Corps, serving in France during the First World War. At the conclusion of the war, he returned to Canada, and worked for four years as a general practitioner in Caron, Saskatchewan. In 1922, on the recommendation of Dr. F.W.G. Starr, he took up a position as Fellow in Pathological Chemistry at the University of Toronto, while working at The Hospital for Sick Children. In 1926 he was invited to join the staff of the Hospital as a junior physician. The same year he won a Rockefeller Foundation Scholarship which enabled him to study biochemistry at Harvard Medical School for the next two years. Returning to Canada in 1928, he was appointed to the full-time clinical and research staff of The Hospital for Sick Children and to the Department of Pædiatrics at the University of Toronto. His research into nutrition and deficiency diseases, in collaboration with Frederick F. Tisdall, under the supervision of Dr. Alan Brown, culminated in the development of the infant formula Pablum, and Sunwheat Biscuits in the early 1930s.

During the Second World War Dr. Drake contributed to the war effort by organizing food parcels for Canadian prisoners-of-war, a service which earned him the Order of the British Empire. In 1949, on the death of Frederick Tisdall, he was appointed Director of the Research Laboratories at The Hospital for Sick Children, a position he

T.G.H. Drake in the uniform of the Royal Army Medical Corps, First World War.

held until his retirement in 1952. During his retirement years he devoted a good deal of his time to the pursuit of his hobbies – the collecting of artefacts, books, and prints relating to health care and medical practice, particularly as they relate to children. Dr. Drake was also an avid gardener, who specialized in the cultivation of irises. He died from a stroke on 28 October 1959 at the age of sixty-seven.

DIETARY RESEARCH

Between 1924 and 1952 Dr. Drake was a leading member of the research team at The Hospital for Sick Children. Thirty-seven articles, published in a variety of journals between 1924 and 1951, include his name among the authors. His first article, entitled "Treatment of Prolapse of Rectum by Alcohol Injection", was published in the October 1924 issue of *Archives of Pædiatrics*. His name appears at the head of the article with that of Alan Brown (1887-1960), physician-in-chief of the Hospital, under whose supervision the research was conducted. His next publication, "Studies on the Carbohydrate Metabolism of Infants", appearing in the June 1925 issue of *Journal of Laboratory and Clinical Medicine*, was co-authored with Frederick F. Tisdall, a collaboration that was to continue in a further thirty articles over the next twenty-four years until Tisdall's death in 1949.

In 1929 Frederick Tisdall was appointed Director of the Nutritional Research Laboratories at The Hospital for Sick Children, newly established with a staff of fourteen, to investigate the nutritional value of infant's food. Drake and Tisdall devoted their energies to developing a nutritious, balanced formula for infants, that would replace pap and grain cereals, such as semolina, which had most of its nutritional value removed, and was difficult for babies to digest. The first step was to develop an irradiated biscuit for babies, made of whole wheat, wheat germ, milk powder, butter, yeast, bone meal, iron and copper. Vitamin D was added by exposing the biscuits to the rays of a mercury quartz lamp. The biscuit, which was marketed as McCormick's Sunwheat Biscuits, was announced in an article, entitled, "A New Whole Wheat Irradiated Biscuit, Containing Vitamins and Mineral Elements", in the *Canadian Medical Association Journal*, February 1930.

The next stage was to develop a cereal that contained the appropriate combination of minerals and vitamins, but was also palatable to infants.

Dr. Drake at work in the Nutritional Research Laboratories at The Hospital for Sick Children, in the early 1930s.

Various combinations were tried out on the willing staff of the Hospital, until the right formula was achieved. The formula was disclosed in the article, "A New Cereal Mixture Containing Vitamins and Mineral Elements", in the October 1930 issue of *American Journal of Diseases of Children*. The bulk of the cereal was a mixture of wheat meal, oatmeal and cornmeal, with the addition of smaller quantities of wheat germ for protein, vitamin B, E, and A; bone meal for calcium and iron; brewer's yeast for vitamin B_1 and B_2; and alfalfa for vitamin A, iron, calcium, and copper. Salt and sugar were deliberately omitted. The result was a bland food that infants relished. Its easy digestibility also made it an ideal food for invalid adults.

Production of the new cereal was taken over by the Mead Johnson Company of Belleville, which reduced preparation time from one hour to a few minutes by pre-cooking the cereal. Marketed from 1931 as "Mead's Cereal", the first ready-to-use baby formula, its name was soon changed to "Pablum", a name invented by Dr. Drake, derived from the

Dr. Drake at home with his collection, ca. 1952.

Latin *pabulum*, meaning "food". Drake and Tisdall refused to take any share of the profits from Sunwheat Biscuits or Pablum, insisting that royalties be paid to the Hospital. The Pædiatric Research Foundation was established to administer the royalties, which continued to flow in for the next twenty-five years until the patent ran out. Revenue from the biscuits and Pablum helped fund the present building of the Hospital on University Avenue, and to establish the Hospital's Research Institute in 1953.

WRITINGS ON THE HISTORY OF PÆDIATRICS

The artefacts and books in Dr. Drake's collections provided the raw material for a series of scholarly writings on the history of pædiatrics, which made valuable contributions to this relatively neglected field of

medical history. At exactly the same time that Drake and Tisdall were developing Pablum, Dr. Drake published his first article on the history of pædiatrics. Entitled "Infant Feeding in England and in France from 1750 to 1800", it appeared in the May 1930 issue of the *American Journal of Diseases of Children* – the same journal which announced the development of Pablum. Infant feeding was the subject of many other of the forty articles Dr. Drake wrote on the history of pædiatrics. A series of seventeen articles entitled "Antiques of Paediatric Interest", was published in the *Journal of Pædiatrics* in 1932 and 1933. These brief, but fascinating articles range from teething necklaces and amulets to pap warmers and feeding bottles. The acquisition of a large collection of French materials prompted four excellent articles on infant welfare laws, infant nutrition, the regulation of wet-nursing, and the rules of hospitals in eighteenth-century France.

CASE 2 PÆDIATRICS IN ANTIQUITY AND THE MIDDLE AGES

As the twentieth century draws to a close, institutionalized care of children has been established in many countries. The rights of children are enshrined in law, which protects them against abuse and exploitation. The medical care of children, both preventive and diagnostic, enjoys a prominent position in our social priorities, and special medical facilities for children are available in most major cities. But these developments are only very recent. The position of the young in society has always been precarious, and children through the ages have fallen prey to neglect, ignorance, cruelty and disease. In primitive societies economic necessity frequently provided a convenient excuse for infanticide, while unfavourable standards of medicine and hygiene only served to swell the high death rate among infants. Even in settled societies infanticide was rife, sometimes in the form of ritualistic sacrifice. In the matriarchal societies of ancient Egypt and Babylonia, on the other hand, there is little evidence of infanticide. The Code of Hammurabi (2250 B.C.) proscribed infanticide, and gave infants some degree of protection. Little is known of the medical practices of these

Woodcut illustration from B. Metlinger, Ein Regiment der Gesuntheit, für die jungen Kinder. *Franckfurdt am Mayn, 1550.*

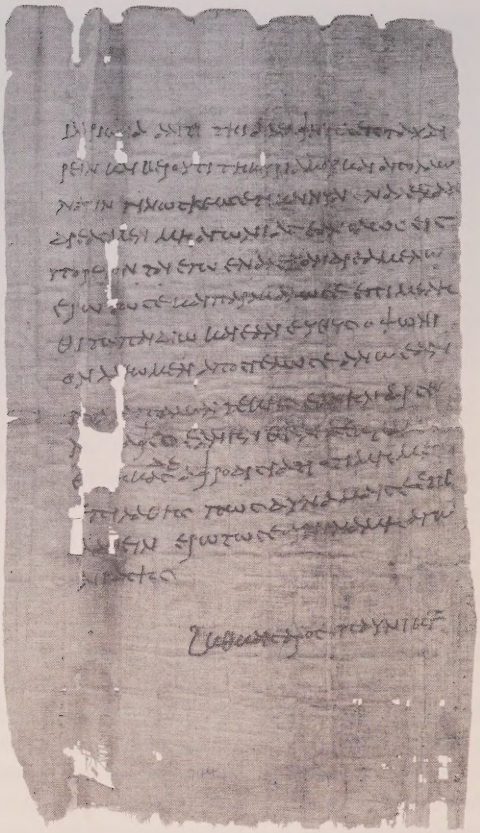
ancient civilizations, given the paucity of palæological and archæological evidence. The Egyptian papyri dealing with medical subjects have little to say on the care of infants.

GREECE

Letter from Ilarion to Alis. 1 B.C.

In ancient Greece, particularly in Athens, children were the absolute property of the father, who decided whether his offspring should be exposed or reared. Among the Fisher Library's collection of papyri is a letter which starkly illustrates this paternal right. It is written from Alexandria in the year 1 B.C. by a man named Ilarion, and is addressed to his sister (i.e. his wife), Alis, who is pregnant. After discussing some domestic matters, the author gives the almost casual instruction, that the forthcoming infant, if female, should be exposed. A translation of the Greek text of this brief letter is as follows:

> Ilarion to Alis his sister, Many greetings, and to my dear Berous and Apollonarion. Know that I am still even now at Alexandria; and do not worry if they come back altogether (?) but I remain at Alexandria. I urge and entreat of you to be careful of the child, and if I receive a present soon I will send it up to you. If – good



Ilarion's letter to Alis.

luck to you! - you bear offspring, if it is a male let it be, if a female expose it. You told Aphrodisias "don't forget me". How can I forget you? I urge you therefore not to worry. The 29th year of Caesar, Pauni 23.

The fate of offspring was normally decided on the fifth day after birth in the presence of the goddess of the hearth. A first child was usually kept, but a second, especially if female, was more likely to be exposed. The unfortunate infant was left in a frequented part of the city, carefully

wrapped and wearing trinkets designed to induce a stranger to take the child. If the child was taken, he or she would most likely become the slave of the new owner.

Information about the medical treatment of children in ancient Greece is sparse. The medical writings that have come down to us contain some information on the care and diseases of children, but do not go much further than strictly clinical observation.

Hippocratis ... Octoginta Volumina. Romae: Ex ædibus Francisci Minitii, 1525.

The Eight Sections of Hippocrates Aphorismes Review'd and Rendred into English. London: Printed by W.G. for Rob. Crofts, 1665.

The most famous practitioner of ancient Greek medicine was Hippocrates, who flourished on the island of Cos in the 5th century B.C. Hippocrates and his followers attempted to free medicine from magic and superstition by introducing a scientific method that relied on accurate observation and accumulated experience. Hippocrates maintained that disease and health depended on the interaction of the environment and the supposed constituents of the human body (the "humours"). Diseases were merely disturbances in the balance of the humours, which nature attempted to bring back into harmony. The role of the physician was principally to assist nature in this process.

Although the Hippocratic canon, which is established in some sixty medical writings, includes no separate treatise on the treatment of children, scattered references to childhood diseases and the preservation of health abound. Hippocrates had much to say on the ailments associated with dentition, and on the symptoms and causes of infantile convulsions and epilepsy. Shown in this exhibition is a section from the treatise entitled *"Prognostic" (De prognostico)*, contained in the first collected edition of Hippocrates, published in Latin at Rome in 1525, under the editorship of Marco Fabio Calvi.

> Convulsions occur to children if acute fever be present, and the belly be constipated, if they cannot sleep, are agitated, and moan, and change colour, and become green, livid, or ruddy. These complaints occur most readily to children which are very young up to their seventh year; older children and adults are not equally

liable to be seized with convulsions in fevers, unless some of the strongest and worst symptoms precede, such as those which occur in frenzy. One must judge of children as of others, which will die and which recover, from the whole of the symptoms, as they have been specially described.

[translated by F. Adams]

Hippocrates' *Aphorisms*, a collection of 412 brief statements on a wide range of medical subjects, also contain many references to children. In this English translation of 1665, the aphorisms have been re-arranged according to theme. The book is open at the section entitled "On the diseases of children".

The legacy of Hippocrates was to endure for the next two thousand years, and many of the medical writings that have survived from the manuscript period derive their inspiration from the Hippocratic canon.

ROME

In ancient Rome the situation of infants was little better than in Greece. The principle of *patria potestas* prevailed in family life, placing absolute authority in the father, who could dispose of his children as he wished with impunity. But since the military stability of Rome required a steady birth rate, laws were introduced to protect the young and to grant financial aid to poor parents. Legislation prohibiting infanticide was enacted by the Roman emperors Gratian, Valentinian, Justinian, and Constantine, though the practice continued. With the advent of Christianity the position of children began to improve. The Church regarded the infant as a possessor of a soul, born in original sin, and requiring redemption. To destroy a child was, therefore, a great sin for which the punishment was eternal damnation. In Roman medicine little progress was made in the knowledge of pædiatrics. Hippocrates' teachings were faithfully followed, as evidenced in the writings of Aulus Cornelius Celsus, Galen, and Oribasius.

Cornelii Celsi De Medicina. Venetiis: Impressor Ioannes Rubeus, die viii. mense Iulii 1493.

Little is known of Aulus Cornelius Celsus, beyond the fact that he lived in Rome ca. 25 A.D. during the reign of the Emperor Tiberius. It is generally believed that he was not a medical man, but an accomplished writer on general subjects, much esteemed by his contemporaries. In addition to his eight books of medicine, he wrote various treatises on agriculture, military science and rhetoric.

Despite Celsus' supposed lack of a formal medical training, *De Medicina* reveals a clear understanding of medical matters, and is notable for its lucidity and comprehensiveness. Although no section of the eight books into which the work is divided deals specifically with the diseases of childhood, there are several pronouncements on the welfare and treatment of children, derived almost entirely from Hippocrates' *Aphorisms*. Celsus describes procedures for various operations, such as hare-lip, imperforate orifices, and cutting of the frenum of the tongue (in the belief that it promoted oratory and prevented lisping). There is some originality in Celsus' remarks on the peculiar nature of infant inguinal and umbilical hernia. Book 3 of *De Medicina*, which discusses various kinds of fever, contains the earliest explicit statement in medical literature on the special handling required in the treatment of stricken children, highlighted in the exhibition in the edition of 1493: *"Et ex toto non sic pueri ut viri curari debent. Ergo, ut in alio quoque genere morborum parcius in his agendu est". [On the whole boys are not to be treated in the same way as men. Therefore, in these we must proceed more cautiously, as in every other kind of disease]*

Galeni ... De Sanitate Tuenda Libri Sex. Thoma Linacro ... Interprete. [Contained in: *Galeni Opera*. Venetiis: Apud Iuntas, 1556]

After Hippocrates the greatest physician of antiquity was Claudius Galen (ca. 120–200 A.D.) Born in Pergamum in Asia Minor, he studied medicine at Smyrna, Corinth and Alexandria, before migrating to Rome, where he taught and practised medicine, eventually becoming court-physician to the Emperor Marcus Aurelius. The Galenic corpus consists of over one hundred individual works, many containing references to the treatment of children. In particular, Book 1 of his *De*

Sanitate Tuenda has many recommendations for preserving the health of infants. The treatise, represented in the exhibition in the 1556 edition of Galen's works, is the popular Latin translation by Thomas Linacre, first issued in 1517. The text is open at a section dealing with the hygiene of the newborn, in which Galen advocates swaddling infants to ensure proper moulding of the limbs and body. He also recommends the ancient custom of salting the newborn in order to harden the skin – a practice recommended in the first century A.D., and still being practised in the seventeenth century:

> The newborn infant, then, free from defect in his entire constitution, should first be powdered moderately and wrapped in swaddling-clothes, in order that the skin may be made thicker and firmer than the parts within ... For infants who are in accordance with nature, a simple salt dusting-powder is sufficient
>
> [translated by Robert Montraville Green]

Oribasii Sardiani Synopseos ad Eustathium Filium Lib. Novem. Quibus tota Medicina in Compendium Redacta Continentur. Ioanne Baptista Rasario ... Interprete. Parisiis: In officina Audoeni Parvi, 1554.

Another native of Pergamum was Oribasius (325-403 A.D.), who, like Galen, spent most of his career in Rome, where he became physician to the Emperor Julian. At the Emperor's request Oribasius compiled a medical encyclopedia consisting of seventy books that has not survived. A synopsis of the work, however, written for his son, has come down to us, and was printed for the first time in 1554 in a Latin version edited by Giovanni Battista Rasario (1517-1578). The work is divided into nine books, several of which contain references to nursing infants, pædiatric medicine and pedagogy. In chapter 3 Oribasius discusses the milk of wet-nurses. He describes the "nail-test" for breast milk, first suggested by Soranus in the first century A.D., and advocated for centuries thereafter:

> The best milk is that which maintains an even level in consistency and bulk and colour, smell, and taste. It is a good thing also to let it drop on the nail of the middle finger and look at it in a strong light. If when the nail is sloped downwards it runs off neither quickly or slowly, it is good
>
> [translated by G.F. Still]

In giving advice on the choice of a wet-nurse, Oribasius goes into considerable detail regarding the desirable physical and moral character of the ideal nurse – a feature that appears regularly in works on child management right up to the nineteenth century.

BYZANTIUM

Ætii Medici Græci Contractæ ex Veteribus Medicinæ Tetrabiblos. Per Ianum Cornarium ... Latinè Conscripti. Basileæ: Impensis Hier. Frobenii, et Nic. Episcopii, mense Septembri, 1542.

Ætius, from the town of Amida in Mesopotamia (present-day Turkey), flourished ca. 540 A.D. in Byzantium where he became court physician to Emperor Justinian I, and High Chamberlain at the Byzantine court. His great medical encyclopedia, called *Tetrabiblon*, is composed of four books each divided into four sections. It is a compilation from the writings of several ancient writers, some of whose texts would otherwise have been lost. This edition of the works of Ætius was the first to contain the full Latin text, translated from the Greek by Janus Cornarius (1500-1558). It was printed by the famous printers Hieronymus Froben and Nicholas Bischoff at Basel A considerable part of the work is devoted to pædiatrics, taken almost verbatim from Galen. There are, however, several previously unrecorded passages on some curious infant disorders, such as snoring, and hairiness. Ætius gave what may be the first account of diphtheria:

> In children the complaint is developed almost constantly from previously existing aphthæ. The ulcers are at times white and patchy, at others of an ashen-grey colour, or they resemble the scabs caused by use of the cautery. The patient is seized with dryness of the throat, to which is added great difficulty in breathing, particularly when redness is seen under the chin, or if, after the acute stage is over, noma and gangrene ensue ... In many cases the uvula is destroyed and, if after a long time the ulceration stops and cicatrization begins, children speak indistinctly and in swallowing, fluid returns through the nose. Thus I have seen a girl

die after forty days, who was already in convalescence. Most cases, however, are in danger up till the seventh day.

[translated by J. Ruhräh]

Pauli Eginetæ P[ræ]cepta Salubria. Guilielmo Copo Basileiensi Interprete. Parisiis: Ex officina Henrici Stephani, 1512.

Paul, from the island of Ægina in the Ægean, practised medicine at Alexandria in the middle of the 7th century A.D. The Islamic physicians of the succeeding centuries considered him one of the most eminent Greek medical authorities, and his writings were much quoted by medical writers of the Renaissance. At least seven printed Latin editions of his works and two Greek appeared before 1550, as well as several commentaries and vernacular translations.

Paul made no claim to originality. His text is drawn from a variety of earlier sources, especially Oribasius' lost medical encyclopedia. The work is divided into seven books, fourteen sections of which contain advice on the care and treatment of children. Book 1, which was printed separately in 1510, under the title *Præcepta Salubria*, deals with questions of hygiene. Among other things, Paul discusses coughing, pruritus (itching) of the skin, dentition, and aphtha (ulceration of the mouth). In the section on dentition the ancient custom, also mentioned by Oribasius, of rubbing infants' gums with the fat of fowls or the brain of a hare is advocated (*"gallinaceo adipe & leporis cerebello molliores reddere convenit"*). For constipation associated with teething a suppository of honey, or rubbing the stomach with mint and honey are recommended. After the eruption of the teeth, the infant should be encouraged to chew on the root of the iris. On display is the 1512 reprint of *Præcepta Salubria*, from the famous press of Henry Estienne (Stephanus) of Paris.

ISLAMIC PÆDIATRICS

Between the eighth and the eleventh centuries science flourished in the Islamic caliphates of the Middle East. The achievements of Muslim writers in laying the foundations of algebra, chemistry, and geology were considerable. In the field of medicine Muslim physicians kept alive the

tradition of Greek, Roman, and Byzantine medicine in Arabic manuscript translations, at the same time making some valuable original contributions of their own. Two of the most prominent writers from this period, Rhazes and Avicenna, were Persians. On the subject of infant care and the diseases of children, the Islamic writers derived most of their knowledge from the writings of Oribasius and Paul of Ægina, adding little that was original.

Liber Rasis ad Almansorem. Venetiis: Per Jacobum Pencium de Leucho, die 8 Martii, 1508.

Abū Bakr Muhammad ibn Zakarīyā Rāzī (865?-925?), also known under the Latinized name of Rhazes, was a native of the Persian province of Khorasan. A widely educated man, he was well versed in mathematics, philology, music, and philosophy in addition to possessing a vast medical knowledge. He left a large corpus of medical writings, which were among the first to be printed in the years immediately following Gutenberg's invention. His most renowned works were the *Kitāb al-tibb Almansuri (Liber ad Almansorem)*, dedicated to Al-Mansur, caliph of Khorasan, and *El-hāwī* (generally known under the Latin title of *Continens*), a comprehensive medical encyclopedia that combines the best of the Hippocratic and Galenic canons with Eastern medical knowledge. A brilliant clinician, Rhazes also left a classic account of smallpox and measles that was translated into English by Thomas Stack, and appended to Richard Mead's *Discourse on the Small Pox and Measles* (1748). Another English translation was undertaken as late as 1848 – testimony of the enduring value of Rhazes' account. Among his shorter medical writings is *De Ægritudinibus Puerorum*, a treatise dealing exclusively with the diseases of children. First printed in 1481 together with other writings of Rhazes, it was reprinted in 1497, 1500, and 1508. Displayed here is a copy of the 1508 edition, open at a page which describes, among other ailments, the symptoms, causes and treatment of diarrhoea in infants (chapter XVI).

CASE 3 PÆDIATRICS IN THE RENAISSANCE

The remarkable revival of learning that characterizes the Renaissance was due in large part to two events that occurred within a few years of each other in the middle of the fifteenth century. The first was the invention of printing by Johann Gutenberg around 1450, which made possible the production and dissemination of multiple copies of texts. The second event was the fall of Constantinople to the Turks in 1453, as a result of which Greek scholars fled to Italy and elsewhere, bringing with them manuscripts and knowledge of the ancient writers. The medical writings of the ancients, usually in Latin translations, were among the first books to be printed, followed by the works of contemporary writers. Although the modern writers added little to the knowledge of pædiatric medicine, their works were instrumental in summarizing and disseminating the medical teachings of the ancients.

Paolo Bagellardo. *De Egritudinibus & Remediis I[n]fa[nt]ium.* [Padua: Matthæus Cerdonis, 10 Nov. 1487]

Paolo Bagellardo. *Opusculum Recens Natum De Morbis Puerorum.* Cum Appendicibus Magistri Petri Toleti. Lugduni: Apud Germanum Rose, 1538.

Paolo Bagellardo (d. 1492 or 1494) was educated at Padua, where he studied philosophy and medicine, and where he later taught for twenty-eight years. His short treatise on the illnesses of infancy, first published in 1472, has a double distinction: it was the first separately printed work devoted exclusively to pædiatrics; and it was the first medical work to be submitted for publication by a living author. It is a compendium of medical opinions on pædiatrics drawn from a variety of sources, mostly Islamic. The book is divided into two parts: Part 1 discusses the management of infants during the first few months of life. Upon birth, a warm bath is recommended, followed by a meal of sweetened baked apple. Part 2 contains descriptions of a variety of common childhood diseases and ailments, accompanied by Bagellardo's remarks based on his own experience. The copy shown in the exhibition is a reprint of 1487. It is open at chapters 6 and 7, which describe afflictions of the eyes, and ears respectively. An Italian translation appeared at Brescia in 1486. In 1538 the Latin text was republished under the guise of a new work by

Woodcut illustration from B. Metlinger, Ein Regiment der Gesuntheit, für die jungen Kinder. *Franckfurdt am Mayn, 1550.*

Pierre Tolet, entitled *Opusculum Recens Natum De Morbis Puerorum*, without acknowledgment to Bagellardo. To Bagellardo's text Tolet added his own comments, and a supplement of diseases not described by Bagellardo.

Bartholomæus Metlinger. *Ein Regiment der jungen Kinder.* [Augsburg: Günther Zainer, after 7 Dec. 1473]

Apart from the fact that he enrolled in 1472 at the Bavarian University of Ingolstadt, little is known of the life of Bartholomæus Metlinger (d. 1491 or 2). His *Regiment*, a folio of twenty-seven leaves, was the second book of pædiatrics to be printed, and the first to be published in the vernacular. It became a popular household manual, and at least four subsequent editions in German appeared before the end of the fifteenth century. It was reprinted, with illustrations, several times in the sixteenth century, together with a modern German version of Heinrich von Louffenberg's poem *Versehung der Leibs* (see below).

The text is essentially a compilation derived largely from Galen's *De Sanitate Tuenda*, and from the Islamic writers, with little evidence of Metlinger's own observations from direct experience. The first two chapters provide general rules for the nursing and weaning of the newborn, with descriptions of several artificial feeding devices. Metlinger notes that although the salting of the newborn is no longer practised, it is nevertheless recommended, on the authority of the

First page of the main text of B. Metlinger, Ein Regiment der jungen Kinder. *Augsburg, 1473.*

Das erſt Capitel ſagt wie man erſt gebor
ne kind halten ſol biſz ſy gon vnd reden ler-
nent in eyner gemein.

COnſtantinus ſprichet ſo die frucht
an die welt geborn wůrt ſo ſol die
heb am dem kind greiffen in ſeinẽ
munt vñ ſol ein roſen honig oder ſunſt ein
honig an den finger ſtreichen damit ſy dem
kind die půbeler den gomen vnd die zungẽ
berieren ſol/vnnd ob etwas ze lősen ſey das
ſol ſy lősen Darnach ſol man den nabel ab
ſchneiden vier finger lang vnd ſol gebundẽ
ſein an des kinds auch an ő můter leib mit
einẽ ſtarcken geleichen faden vrſachen halb
daz ſy ſich nit verplietend Darnach ſprechẽ
die meiſter das man kind mit klein gerybẽ
ſalcz durch ſalczen ſol an allem leib on den
munt die naſzlöcher vnnd das angeſicht.
Doch ſo iſt gůt mit ſalcz ze vermiſchen wol
gemůt roſen vnd heidelber eins wie des an-
deren vndereinander vermůſch klein gerybẽ
Quercois aber vnd auenzoar ſprechend für
ſollichs ſalczen das da beſt mag man die
kind durch ſalben mit ől das auſz eychelen
gemacht iſt ſolliches ſalczen oder ſalben rei
niget alle auſzwendige geiyder vnd ſtercket
ſy dz in weder kelt noch ůberige hicz herty
noch lindy deſter minder ſchat/vnnd mit
mindern ſorgen mag man ſy hädelen Nach
dem ſol man kind erwaſchen auſz einem lew-
lotten waſſer ſummer zeyten/ oder auſz einẽ

ancients. Chapter 3 describes various diseases, including meningitis, and hydrocephalus ("water on the brain"), with some observations on jaundice in the newborn. Chapter 4 deals with the physical and moral upbringing, and nutrition of the child from toddler to seven-year old. The book is open at the first page of the main text, where Metlinger gives instruction on the proper management of infants.

Sebastianus Austrius. *De Infantium sive Puerorum, Morborum, & Symptomatum, Dignotione, tum Curatione Liber.* Basileæ: Apud Bartholomæum Westhemerum, mense Augusto, 1540.

Nicolaas Fonteyn. *Nicolai Fontani Commentarius in Sebastianum Austrium ... De Puerorum Morbis.* Amstelodami: Apud Ioannem Ianssonium, 1642.

The third book on pædiatrics to be published in the fifteenth century was a brief work by Cornelius Roelans (d. 1525), entitled, *De Ægritudinibus Infantum*, printed at Louvain in 1483 or 1484. It is an exceedingly rare book; only four copies are known to have survived. Roelans' work, which presented a rather confused picture of infant afflictions, arranged according to areas of the body, was made familiar to the medical world through Sebastianus Austrius (d. 1550), who reworked Roelans' text, and published it under the title: *De Infantium sive Puerorum Morborum, & Symptomatum Dignotione, tum Curatione Liber.* Austrius made only oblique reference to Roelans, and passed off the work as essentially his own. To Roelans' descriptions of fifty-two diseases, culled from the writings of ancient and mediæval writers, and organized according to name, cause, symptoms, prognosis and cure, Austrius added two more: on stuttering (displayed here), and incontinence. Austrius' work was in turn revised and published in 1642 by Nicolaas Fonteyn (Nicolaus Fontanus), who unwittingly attributed the work to Austrius, adding a commentary based on original case studies from his own experience. Fontanus' revision includes three woodcut illustrations. The one displayed in the exhibition depicts the unclosed plates of the cranium of an infant.

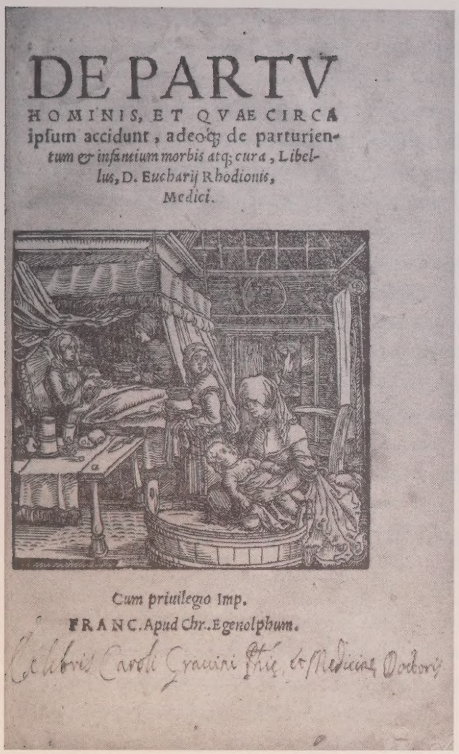
In relation to the rest of Europe, England lagged behind in its contribution to pædiatric literature. Although works in vernacular languages began to appear as early as 1473 with the publication of Metlinger's *Ein Regiment der jungen Kinder*, in England it was another seventy years before the first work on pædiatrics in English. In 1540 *The Byrth of Mankynde*, a translation by Richard Jonas of Eucharius Rhösslin's *Der swangern Frawen, und Hebammen Rosegarten*, was published. It was followed in 1546 by Thomas Phaer's *The Boke of Children*, the first work on pædiatrics to be written by an Englishman.

Eucharius Rhösslin. *The Byrth of Mankynd, Otherwyse Named The Womans Boke. Newly Set Forth, Corrected and Augmented ... by Thomas Raynald Phisition.* Imprinted at London: By Tho. Ray., 1552.

Eucharius Rhösslin. *De Partu Hominis, et quæ circa ipsum accidunt, adeoq; de Parturientum & Infantium Morbis atq; Cura.* Franc[ofurti]: Apud Chr. Egenolphum, 1554.

Rhösslin's work, first published at Strassburg in 1512, was the first to be devoted entirely to obstetrics, but also includes a wealth of practical advice on the care of newly born infants, and on the diseases of children. It was an extremely popular work, and was translated in 1532 into Latin as *De Partu Hominis*, as well as into Dutch, French and English. In all, over forty editions appeared over the next two centuries. The first English version was published in 1540, translated from the Latin text by Richard Jonas. This translation, made "at the request and desyre of dyvers honest and sadde matrons", was revised and augmented in 1545 by Thomas Raynalde. It was republished in 1552, and then regularly over the next 130 years.

Rhösslin made little in the way of original contributions to pædiatrics, relying heavily on ancient and mediæval medical writings, as may be seen in the section, shown here, on the treatment for "exulceration of the gummes". He repeats the ancient remedy of rubbing the infant's gums "with oyntme[n]t made of hennes grese, heyres or conies brayne". Also displayed is a 1554 edition of the Latin translation, which is illustrated with rather crude woodcuts.



Title page of E. Rhösslin, De Partu Hominis, 1554.

Thomas Phaer. *The Regiment of Life, whereunto is added a Treatise of the Pestilence, with The Boke of Children.* Newly corrected and enlarged by T. Phayre. Imprinted at Lo[n]don: By Edwarde Whitchurche, 1550.

Thomas Phaer (1510?–1560) was educated at Oxford, before studying law at Lincoln's Inn. In addition to his medical writings, he published two law books, a translation of Virgil's *Æneid* that became the standard English version before Dryden's, and some original verse of his own.

Although eclectic in nature, *The Boke of Children* was an original work by Phaer, and was issued as an appendix to his translation of the popular French work by Jean Goeurot, known variously as

L'Entretenement de vie, or *Summaire tres singulier de toute medecine et cyrurgie*, first issued ca. 1543 without *The Boke of Children*. The edition of 1544 was the first to include *The Boke of Children*, and was reprinted at least seven more times before the end of the century. Copies of three other sixteenth-century editions are also in the collection.

Phaer seems to have been motivated by a genuine concern for the medical welfare of children, which in his opinion had been sorely neglected in England.

> I entende in this booke ... to treat onely of the thinges necessary, as to remove the sicknesses, wherewith the tender babes are ofte[n]times afflicted, and desolate of remedye, for so muche as manye doe suppose that ther is no cure to be ministred unto the[m], by reason of theyr weakenes ...

Through his efforts Phaer sought to make medical knowledge accessible to the wider English public, and raise general awareness in regard to the care of children. He also hoped that others would follow his example by writing in English. In his "Preface to the Reader" he writes

> ... my purpose is here to doe them good that have moost nede, yt is to saye children: and to shewe the remedies that god hath created for the use of ma[n], to distribut in Englishe to them that are unlerned, part of ye treasure that is in other la[n]guages, to provoke them that are of better lerni[n]g, to utter theyr knowlege in such lyke attemptes ...

There is little new in Phaer's work, which was mostly derived from the usual Greek, Roman and Islamic sources, which he acknowledges. The first part of *The Boke of Children* addresses the topic of infant nutrition and stresses the importance of milk. One of the remedies he quotes for increasing the mother's milk supply is to take "the pouder of earth wormes dryed and dronken in the broth of a neates tonge". As a treatment for bed-wetting he suggests a powder made from either the trachea ("wesande") of a cock, or the spikes of a hedgehog, to be administered two or three times a day. But not all of his suggestions are so dubious, and there is also much sound practical advice.

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Felix Würtz. *An Experimental Treatise of Surgerie, in Four Parts ... Whereunto is added ... The Childrens Book.* London: Printed by Gartrude Dawson, 1656.

Felix Würtz (1518-1575?), a military surgeon, was the author of an important book of practical surgery, entitled *Practica der Wundarztney*, first printed at Basel in 1563. It was so influential, that a century later it was still being published and had been translated into French, Dutch, and English. Appended to Würtz's text is a short work on the diseases of children, entitled, *"Ein schön und nussliches Kinder-Büchlein"*, translated as *"The Childrens Book"* in the 1656 English version of Abraham Lenertzon Fox.

This brief work is arguably the most original pædiatric treatise of the sixteenth century. The author writes only on matters of which he has had direct experience. In addition to providing sound advice on the feeding of infants, Würtz also touches on infant orthopædics. He rejects the practice of breaking crooked limbs, and describes in detail how the bones should be set correctly. His advice is summed up in a little verse:

> Have a care you bind the joint not too hard,
> Then surely is done neither hurt nor smart.
> Do not begrudge your time at all,
> A timely cure on the party will fall.
> Be exact with your tying and setting,
> Then the crooked joint will right come in.
> Give not over, be willing, not timorous,
> The joint grow'th right as a twick most curious.

Würtz was one of the first writers to condemn the age-old practice of swaddling the newborn. He was also opposed to the use of walking and sitting devices for infants, on the grounds that they place undue strain on undeveloped muscles. His sensible advice on hygiene includes a warning against leaving infants exposed to flies and other insects.

Simon de Vallambert. *Cinq Livres de la Maniere de Nourrir et Governer les Enfans des Leur Naissance.* A Poictiers: Par les de Marnefz, & Bouchetz, freres, 1565.

This work by Simon de Vallambert, or Vallembert (d. 1558?) was the first on pædiatrics to be published in French. Like Thomas Phaer in

England, Vallambert defended the use of the vernacular, since his book was intended not so much for doctors, as for midwives and nurses, who were unlikely to know Latin, the customary language of medical discourse.

The five books deal with the choice of nurses; instructions on the management of the newborn; the feeding of infants before weaning; feeding after weaning; and the treatment of infant diseases. Realizing the danger of infection, Vallambert condemns the practice of feeding infants with bread first chewed by the nurse. An advocate of regular bathing, he devotes six pages to the subject, recommending three or four baths daily, and frequent grooming of the hair. The book is open at chapter 11, which contains the first reference in pædiatric literature to infant syphilis.

Omniboni Ferrarii ... De Arte Medica Infantium, Libri Quatuor. Brixiæ: Apud Franciscum, & Pet. Mariam fratres, de Marchettis, 1577.

Ognibene Ferrari (1584-1655) was a physician at Verona. The sixty-two chapters of his work are divided into three parts: the management of wet nurses; the care and feeding of the newborn; and the diseases of children. Appended is a list of aphorisms on the care and diseases of children, based on the writings of Hippocrates and Galen, but with a few additions from more recent sources. On the question of feeding, Ferrari repeats the customary wisdom of the Greek and Islamic writers. For instance, he recommends the introduction of solid food at seven months. In contrast to Vallambert, he recommends that bread and vegetables should first be chewed by the nurse before being put in the infant's mouth. The work includes three engraved illustrations. Displayed here is a self-operated suction pump for expressing breast milk. Other illustrations depict various devices for training children to walk and sit, such as were condemned by Felix Würtz. Another device is a helmet designed to protect the child's head from injury.

Gulielmi Ballonii ... Epidemiorum et Ephemeridum Libri Duo. Studio & Operâ M. Iacobi Thevart ... Digesti, Scholiis aliquot Illustrati, & in Lucem Primum Editi. Parisiis: Apud Iacobum Quesnel, 1640.

An eminent physician and professor of medicine at Paris, Guillaume de Baillou (1538-1616) is regarded as one of the founding fathers of

epidemiology. Although publishing little during his lifetime, Baillou left his manuscripts to his relative, Jacques Thevart, who published them in 1640. His best work, *Epidemiorum et Ephemeridum*, contains the first detailed account of whooping-cough, an epidemic of which occurred in the summer of 1578. Baillou distinguished whooping-cough, known as *quinta* or *quintana* in Latin, from other violent coughs in children. The twenty-page account is rich in detail and is illustrated with case studies. An outstanding clinician, Baillou also provides excellent accounts of epidemics of bubonic plague, and typhoid fever. He was also one of the first to recognize the choking false membrane of diphtheria.

THE SEVENTEENTH CENTURY

CASE 4

The seventeenth century witnessed a remarkable revolution in scientific method, based on Francis Bacon's principle of inductive reasoning. Bacon's insistence that science should be experimental and factual, rather than philosophical and speculative, had an immediate effect on physics, culminating in the great scientific work of Kepler, Galileo, Newton, Boyle, and Hooke, to name but a few. Medicine, which had for centuries relied on the Hippocratic theory of humours, and the pharmacopoeia of the Galenic school, gradually benefited from the new methodology, as the old authorities were critically examined. Experimental medicine made great strides through the work of Thomas Willis, Richard Lower, and other members of the Royal Society. Important changes were made to the materia medica, especially

Woodcut illustration from B. Metlinger, Ein Regiment der Gesuntheit, für die jungen Kinder. *Franckfurdt am Mayn, 1550.*

with the addition of the febrifuge quinine. In diagnostic medicine several classic descriptions were written, including the pædiatric diseases of rickets, infant scurvy, and chorea, as specific diseases began to be differentiated from general complexes of symptoms. In a century when epidemics of bubonic plague, smallpox, typhus, and dysentery were ever present, the seemingly new disease of rickets made a dramatic appearance.

Elizabeth Clinton, Countess of Lincoln. *The Countesse of Lincolnes Nurserie.* At Oxford: Printed by Iohn Lichfield, and Iames Short, printers to the famous Universitie, 1622.

The question of maternal breast feeding is a recurrent theme in pædiatric literature, most authorities agreeing that mother's milk was the most natural and beneficial source of nutrition for infants. This twenty-one-page pamphlet is a strong appeal to mothers to nurse their own children. It is especially interesting by virtue of the fact that it was written, not by a medic, but by a lay person, and is one of the few works in the history of pædiatrics to be written by a woman. The author, Elizabeth Clinton, wife of Thomas, 12th Earl of Lincoln, and mother of eighteen children, explains her purpose in the preface:

> Because it hath pleased God to blesse me with many children, and so caused me to observe many things falling out to mothers, and to their children; I thought good to open my minde concerning a speciall matter belonging to all childe-bearing women, seriously to consider of: and to manifest my minde the better, even to write of this matter, so farre as God shall please to direct me; in summe, the matter I meane, *is the duty of nursing due by mothers to their owne children.*

The Countess explains remorsefully that, "overruled by anothers authority, and partly deceived by somes ill counsell", she had not nursed her own children, only one of whom survived childhood. Her infants had been given over to wet-nurses, to whose carelessness the countess attributes the deaths of two of her offspring. Now a grandmother and widow, she wishes to make amends for her neglect by urging young

mothers not to repeat her mistake. She regards maternal breast feeding as a moral obligation, ordained by God, supporting her arguments with Biblical references. The Countess dedicates her work to her daughter-in-law, Lady Bridget, wife of her only surviving child, Theophilus, 13th Earl of Lincoln. A commendatory letter by Thomas Lodge, a minor playwright, poet, and physician, prefaces the work.

Jacques Guillemeau. *Child-birth, or, The Happy Delivery of Women. Wherein is Set Downe the Government of Women ... With a Treatise for the Nursing of Children. To which is added, a Treatise of the Diseases of Infants, and Young Children: with the Cure of them, and also of the Small Pox*. London: Printed by Anne Griffin, for Ioyce Norton, and Richard Whitaker, 1635.

Jacques Guillemeau (1550-1613) was a pupil of the famous surgeon Ambroise Paré, whose works he translated into Latin. He became surgeon at the Hôtel-Dieu in Paris, and personal surgeon to three successive French kings – Charles IX, Henri III and Henri IV. His principal medical contribution was to the field of obstetrics in a work entitled *De l'Heureux Accouchement des Femmes*, published in 1609, and translated into English in 1612; a second edition of the translation appeared in 1635.

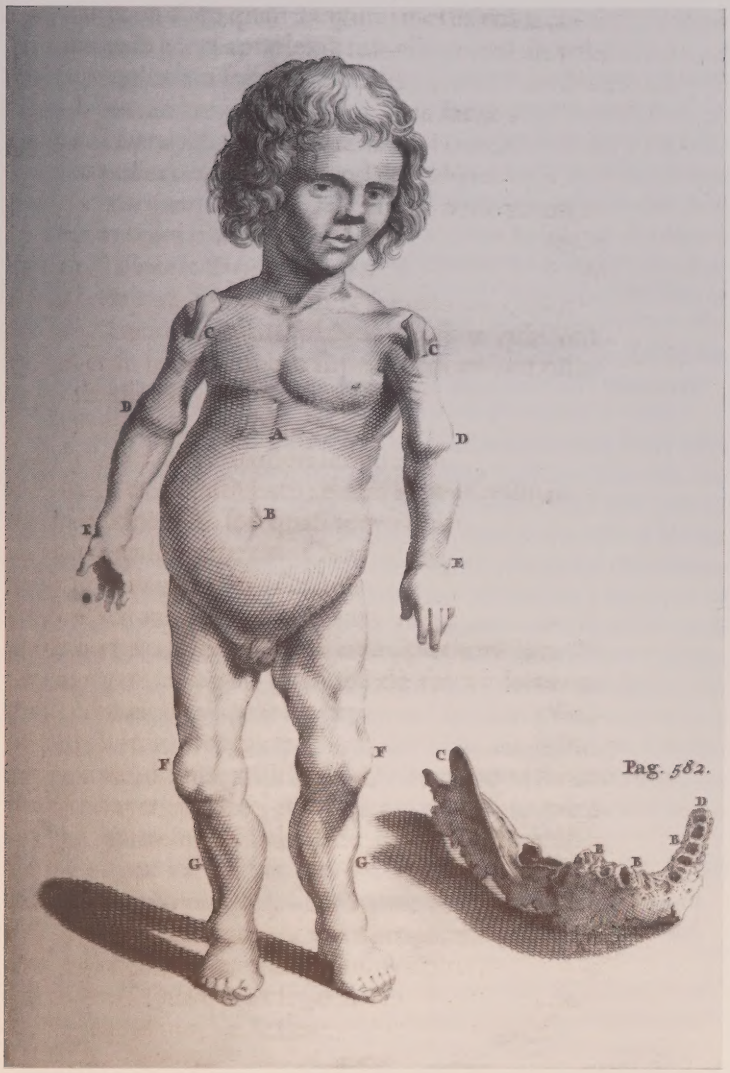
Like most early obstetrical treatises, Guillemeau's book included sections on the management of newborns. But the author goes beyond the customary advice to new mothers by also treating the diseases and complaints of infants. This is set out in an appendix to the main work, with its own special title page: *The Nursing of Children. Wherein is Set Downe the Ordering and Government of them from their Birth* (the French original is entitled *De la Nourriture et Gouvernement des Enfans*). Divided into thirty-nine chapters, the work begins with an exhortation to mothers to breast feed their own children. Chapters 1-10 deal with various aspects of nursing and infant hygiene; chapters 11-39 treat the diseases of children. Chapter 28, shown in the exhibition, is devoted to difficulties experienced by boys in urinating, for which circumcision is sometimes necessary. Guillemeau gives detailed instructions on the procedure, with illustrations of the appropriate instruments. One chapter is devoted to syphilis in infants.

Various symptoms of rickets had been observed and described in isolation in medical treatises dating as far back as Soranus, and there is evidence of rickets in exhumed Egyptian mummies. But nobody had linked the symptoms into a single pathognomonic whole. It was widely believed, in fact, to be a new disease that had made its appearance in Dorset and Somerset in the early part of the seventeenth century, and had spread across the southern and western counties of England. As a cause of death, rickets first appeared in the London Bills of Mortality for 1634.

Rickets, known on the continent as "the English disease", was the subject of much discussion at this time, and between 1645 and 1668 four books devoted exclusively to the disease appeared in England. Thereafter rickets was regularly included in books of pædiatric diseases. The first work devoted entirely to rickets was a brief inaugural dissertation, written for the M.D. degree by Daniel Whistler, at the University of Leiden in 1645. Around the same time a committee made up of eight members of the College of Physicians, headed by Francis Glisson, was carrying out research on the disease, the results of which were published in 1650. A year earlier a brief work by Arnold Boate appeared, and in 1668 John Mayow's treatise on rickets was published at Oxford.

Daniel Whistler. *Disputatio Medica Inauguralis De Morbo Puerili Anglorum, quem Patrio Idiômate Indigenæ Vocant The Rickets* ... Lugduni Batavorum: Ex officinâ Wilhemi Christiani Boxii, 1645. Ob defectum exemplarium novis typis conservandas hasce theses author voluit, Londini: Ex typis Thomae Flesher, 1684.

Whistler's dissertation opens with various explanations as to the origin of the name of the disease. One hypothesis is that Rickets was the name of the quack who first treated the disease in England. Another theory was that it was a corruption of "to rucket", a Dorset dialectism describing people who were short of breath. Whistler proposed calling the disease *"pædosplanchnosteocaces"*, meaning an affliction of the viscera and bones of children, a name that, thankfully, did not catch on. Whistler's work contains no original observations, but it does describe seventeen symptoms by which rickets is recognized; they include: enlarged skull;



A child with rickets. From Frederik Dekkers, Exercitationes Practicæ circa Medendi Methodum. *Editio altera. Lugduni Batavorum, 1695.*

swollen abdomen; swelling of the costochondral junctions; bending of the large bones and spine; narrowness and deformity of the chest; and the late eruption of the teeth. The rest of the work is made up of hypotheses and reports of others. Although Whistler has been accused of making use of Glisson's work for his dissertation without acknowledgement, these accusations were never made during Whistler's lifetime, and have recently been shown to be unjustified. In fact, Whistler's dissertation went completely unnoticed, and is not mentioned by Glisson in *De Rachitide*. In the year of his death Whistler re-issued the work, perhaps in an attempt to establish his priority.

Arnold Boate. *Observationes Medicæ De Affectibus Omissis*. Londini: Excudebat Tho. Newcomb pro Tho. Whitaker, 1649.

Four years after the publication of Whistler's work on rickets, the disease was discussed in a work entitled *Observationes Medicæ de Affectibus Omissis*. The author, Arnold Boate (de Boot, Bootius), a Dutchman, studied medicine at Leiden, before moving to Ireland where he established a practice in Dublin. In 1644 he left Ireland for Paris where he wrote his *Observationes*. Apparently unaware of Whistler's dissertation, Boate focused on the deformity of the chest, which he called *"tabes pectorea"*. He attributed this deformity to the enlargement of the liver which impeded the chest capacity, and identified the probable cause as the excessive intake of alcohol by the mother during pregnancy. He also reported the occurrence of the disease in Ireland and Paris. The work was reprinted in 1664* and 1676. Besides his medical interests, Boate was also an accomplished Hebrew scholar.

Francis Glisson. *De Rachitide, sive Morbo Puerili, qui Vulgo The Rickets Dicitur* ... Londini: Typis Guil. Du-Gardi; impensis Laurentii Sadler, & Roberti Beaumont, 1650.

Francis Glisson. *De Rachitide, sive Morbo Puerili, Tractatus*. Editio tertia, priori adcuratior longe, & emendatior. Lugduni Batavorum: Ex Officina Cornelii Driehuysen, & Felicis Lopez, 1671.

Francis Glisson (1597-1677) studied medicine at Cambridge, where he was appointed Regius Professor of Physic. He was also a prominent

member of the College of Physicians, and a founding member of the Royal Society. *De Rachitide*, the result of five years of research by a commitee of eight physicians, headed by Glisson, is considered the most significant treatise on rickets, and the first comprehensive account of the disease. Others involved in the project were George Bate (1608-1669), Ahasuerus Regemorter (1614-1650), whose names appear on the title page of the published work, and also T. Sheafe, R. Wright, N. Paget, J. Goddard, and E. Trench.

After a brief discussion of the origin of the name of the disease, Glisson proposes the Latin *rachites*, derived from the Greek word for spine, one of the main seats of the disease, and coincidentally similar to the accepted English name of rickets (the adjective "rachitic" is used in English to describe one afflicted by the disease). He provides a comprehensive discussion of the symptoms and pathology of rickets, emphasizing the value of post-mortem evidence. One of the principal causes of the disease, Glisson believes, was over-feeding, hence the prevalence of the disease among the wealthier rather than the poorer classes of society. Indeed, King Charles I was believed to have suffered from rickets, and his daughter Princess Elizabeth died at the age of fifteen from the disease. Glisson demonstrates that rickets is not associated with syphilis, as was commonly thought, or with infant scurvy, which often attended rickets. Glisson's detailed clinical account of infant scurvy went largely unnoticed, and it was not until the second half of the nineteenth century that it was "rediscovered" through the work of Sir Thomas Barlow. A large part of *De Rachitide* deals with the treatment of rickets, which includes dubious recipes for potions made from earthworms, frogs' livers, young ravens, and woodlice washed in white wine, baked and powdered. On the positive side, Glisson provides descriptions and illustrations of various splints for correcting deformities of the limbs, and recommends the application of traction through suspension.

De Rachitide was translated into English in 1651 by Philip Armin, with additions and corrections by Nicholas Culpepper; it was reissued in 1660 and 1668. The original Latin edition was republished at London in 1660, at Leiden in 1671 with an illustrated title page, and again in 1682*. Glisson's fame rests not only on *De Rachitide*. He was also the author of a major study of the liver, *Anatomia Hepatis* (1654), which contains a description of the fibrous capsule which bears his name.

John Mayow. *Tractatus Duo, quorum prior agit De Respiratione: alter De Rachitide*. Lugd. Batavor.: Apud Felicem Lopez de Haro, & Cornelium Driehuysen, 1671.

John Mayow (1641-1679) studied medicine at Oxford, where he became one of the famous group of Oxford physiologists that included Richard Lower and Thomas Willis. His *Tractatus Duo* was first published at Oxford in 1668. The first tract, on respiration, was an important contribution to chemistry and physiology. The second tract, on rickets, shows familiarity with Glisson's work, but provides a much more succinct account of the symptoms and therapeutics of the disease. He attributes the cause of rickets to "inadequate nervous influx" to the muscles, and identifies the spinal marrow as its primary seat. In contrast to Glisson, who believed rickets was the result of poor nutrition, Mayow attributes the bowing of the bones to the unnatural shortening of ill-nourished muscle fibres. Swelling of the head, often seen in cases of rickets, he ascribes to the nervous liquors being blocked in the spinal marrow, collecting in the head, thus causing it to enlarge. The work is illustrated with two folding engraved plates. The plate displayed shows various skeletal deformities associated with rickets.

Tractatus Duo was reissued at Oxford in 1669, and at Leiden in 1671★ – the same year and by the same publishers of the second edition of Glisson's *De Rachitide*. Mayow's two tracts were enlarged and revised, and were published, together with three new tracts, in his *Tractatus Quinque*, published in 1674. In 1685 the tract on rickets was translated into English and issued separately as *Rachitodologia, or, A Tract of the Disease Rhachitis, Commonly Called the Rickets*. It was republished in 1687 with the new title *The Mothers Family Physician*.

The debate on rickets continued into the eighteenth century, with a large number of inaugural dissertations being written on the subject, many of which are in the Drake Collection. Two hundred years were to elapse before rickets was finally identified as a diet deficiency disease. The curative power of cod liver oil, recognized in the 1770s, began to be used with great success in the treatment of rickets from the mid-nineteenth century.

★★★★★

Richard Pemell. *De Morbis Puerorum, or, A Treatise of the Diseases of Children; with their Causes, Signs, Prognosticks, and Cures, for the Benefit of Such as do not Understand the Latine Tongue, and very Useful for all Such as are House-Keepers, and have Children.* London: Printed by J. Legatt, for Philemon Stephens, 1653.

Richard Pemell (d. 1653), a physician at Cranbrook in Kent, was the author of several medical works, all published in the last four years of his life. *De Morbis Puerorum*, published five days before his death, was only the second pædiatric book written by an Englishman in his native language, appearing over one hundred years after Thomas Phaer's landmark work.

Like Phaer, Pemell explained that his principal motive in writing in English was to educate the lay public as well as trained practitioners. Each of the twenty-eight chapters treats a specific disease or disorder, and is organized under the headings of cause, signs, prognostics, and cure. Although Pemell repeats many of the stranger recommendations of Greek therapeutics, such as the use of hare's brain in the treatment of sore gums, there is much original material, drawn from his own experience. *De Morbis Puerorum* contains the first reference in England to lancing the gums in cases of difficult teething (though the practice was commonly performed in France); lancing was later established as standard practice by Joseph Hurlock (see below). The book is open at chapter 26, which treats of the common problem of bed-wetting.

Steven Blankaart. *Verhandelinge van de Opvoedinge en Ziekten der Kinderen.* t'Amsterdam: By Hieronymus Sweerts, 1684.

Steven Blankaart (1650–1704) took his medical degree at the University of Franeker, before practising at Amsterdam. A prolific writer, he was the compiler of a Greek-Latin medical lexicon, and the author of a treatise on smallpox, a disease which took the life of one of his sons.

Verhandelinge van de Opvoedinge en Ziekten der Kinderen has the distinction of being the first book on pædiatrics to be published in the Dutch language. Divided into three books, book 1 deals with the care of infants from birth to weaning; books 2 and 3 examine the diseases of children. Blankaart provides some sound observations on child

A child with ichthyosis.
Steven Blankaart,
Verhandelinge van de
Opvoedinge en Ziekten
der Kinderen.
t'Amsterdam, 1684.

psychology. There are chapters on bed-wetting and incontinence, rickets, burns, and near-drowning. He also describes a severe case of ichthyosis (scaly skin), complete with illustration. The illustrated title page shows several children being examined for various ailments.

Thomas Sydenham. *The Whole Works of that Excellent Practical Physician, Dr. Thomas Sydenham.* Eighth edition; corrected from the original Latin, by John Pechey. London: Printed by J. Darby for M. Poulson, and sold by A. Bettesworth, and F. Clay, 1722.

After studying medicine at Oxford and Montpellier, Thomas Sydenham (1624-1689) established a flourishing practice in London, and in 1663 was elected a fellow of the College of Physicians. Known as "the English Hippocrates", he revived the Hippocratic methods of observation and experience, and his great reputation as a clinician rests on his classic first-hand accounts of a number of diseases, including the childhood diseases of chorea, scarlet fever, and measles.

Sydenham's account of chorea (variously called chorea minor, rheumatic chorea, Sydenham's chorea, or St. Vitus' dance), a neurological disorder occurring mostly in adolescents, and characterized by irregular, involuntary movements of the muscles, was first published in 1686 in a digression from a description of a new fever which had broken out in London in February of 1685. The accounts of both measles and scarlet fever first appeared in his *Observationes Medicæ circa Morborum Acutorum Historiam et Curationem* (London, 1676)★, an expanded version of his *Methodus Curandi Febres*★. Although Sydenham cannot claim priority for his descriptions of either disease (scarlet fever had been described by Ingrassi in 1553, and by Sennert in 1641; measles was described by Rhazes), he gave the first detailed clinical accounts. His report on an epidemic of measles in 1674 refers to the dangerous hæmorrhagic variety of the disease, for which he recommmends venesection – a treatment used until the mid-nineteenth century. In discussing scarlet fever, which he calls "scarlatina", Sydenham remarks on the cutaneous and febrile characteristics, but fails to take note of the sore throat which is symptomatic of the disease. The account of scarlet fever is shown here in the eighth English edition, translated by John Pechey (1655-1716). First published in 1696, Pechey's translation went into eleven editions between 1696 and 1740. Pechey was also the compiler of *A General Treatise of the Diseases of Infants and Children* (1697)★, drawn mostly from Sydenham.

Walter Harris. De Morbis Acutis Infantum. Londini: Impensis Samuelis Smith, 1689.

Walter Harris. *An Exact Enquiry into, and Cure of the Acute Diseases of Infants.* Englished by W.C. London: Printed for S.C. and sold by John Wyat, 1694.

While studying at Oxford, Walter Harris (1647-1732) converted to Roman Catholicism and finished his studies in Bourges in France, where he obtained his medical degree in 1675. He established a thriving medical practice in London among the capital's Catholic community, but in the wake of the Popish Plot of 1678, recanted and reverted to Anglicanism. He subsequently became physician-in-ordinary to William III, and attended Queen Mary during her final illness.

De Morbis Acutis Infantum was a great success, going into many editions and translations, including three different Engish versions. It served as the standard textbook on pædiatrics until it was replaced in 1784 by Michael Underwood's *A Treatise on the Diseases of Children* (see below). Harris tells us in the preface that publication of his work was at the urging of Thomas Sydenham, who, he claims, heaped praise on Harris' method of treating infantile diseases. The popularity of the book was mainly due to the great simplicity, or some might say simplification, of Harris' diagnostics, which ascribed all infant diseases to a single cause: "all the symptoms of childrens diseases do justly reckon their beginning from an acid". Having identified acid as the origin of infant maladies, Harris offers an equally simple remedy, of neutralizing the acid with calcium alkalis. He suggests a medication of "testaceous powders", made from powdered crabs eyes and claws, the shells of various bivalves, egg shells, chalk, coral, and pearls. Medication should be followed up with a purgative, preferably rhubarb. Harris sensibly decries the use of opiates and wine, often masquerading as wholesome cordials. Despite the popularity of the book, Harris had his detractors, against whom William Cockburn, translator of the first English edition of *De Morbis*, defends him in the "Epistle to the reader". A second translation into English, by John Martyn, F.R.S., claiming to amend the "uncouth style" of Cockburn's version, appeared in 1742*. The first editions of both the Latin original and the English translation are displayed. In 1742 a third English translation was included in the anthology, *A Full View of All the Diseases Incident to Children* (see below).

THE EIGHTEENTH CENTURY

As theorizing gradually gave way to large-scale clinical observation, enormous progress was made in medicine during the eighteenth century. Against this background, pædiatrics began to emerge as a specialized branch of medicine, particularly in the second half of the century with the publication of the textbooks of Nils Rosen von Rosenstein and Michael Underwood. As specific diseases began to be differentiated from general complexes of symptoms, a number of children's diseases, such as mumps, chicken-pox, diphtheria, meningitis, and poliomyelitis, were accurately described for the first time. Major improvements in infant hygiene were due largely to William Cadogan's revolutionary *Essay upon Nursing*. There were also advances in experimental and preventive medicine, culminating in Edward Jenner's discovery and use of vaccination, while orthopædics was given a sound foundation through Nicolas Andry's work. It was also a century of genuine charity towards children. In Britain the Foundling Hospital was established in 1741 through the efforts of Thomas Coram, and in 1769 George Armstrong opened the first dispensary for children. Similar developments took place in other countries. Towards the end of the century there was a marked increase in the number of medical periodicals, which began to be the preferred medium for announcing new findings in medical research – a trend that became the norm in the late nineteenth and twentieth centuries.

Georgii Wolffgangi Wedelii Liber de Morbis Infantum. Ienæ: Sumptibus Ioh. Felicis Bielckii, typis Krebsianis, 1717.

Georg Wolffgang Wedel (1645-1721) was Professor of Medicine at Jena, where Friedrich Hoffmann was one of his students. Among the diseases discussed in his *Liber de Morbis Infantum*, are several congenital deformities, including hare-lip and polydactyly (extra fingers). Although Glisson had given a detailed clinical description of infant scurvy in *De Rachitide*, Wedel was the first to include scurvy in a systematic treatise on the diseases of children (without reference to Glisson). As a treatment for scurvy he prescribes antimony, rhubarb, and mercury. The book is opened to a chapter on obesity in children, which Wedel was the first to regard as a disorder.

Theodori Zvingeri ... Pædojatreja Practica, Curationem Plerorumque Morborum Puerilium per Meras Observationes, in Praxi Quotidianâ Factas, Clarè & Distinctè Exponens. Basileæ: Apud E. & J.R. Thurnisios, fratres, 1722.

Theodor Zwinger (1658-1724), Professor of Theoretical and Practical Medicine at the University of Basle, is regarded by some as the first to view pædiatrics as a separate medical discipline, and is credited with having coined the term "pædiatrics". The 169 *"observationes"* into which *Pædojatreja* is arranged, discuss a wide range of childhood diseases, surgical procedures, and such infant disorders as bed-wetting, which the author regards as belonging properly to the field of infant urology. Zwinger provides an account of an epidemic of whooping-cough in 1712, which he attributes to the drinking of cold water during hot weather. He notes the gradual intensity of the cough, which is sometimes attended by wasting, and the rupture of blood-vessels in the palate. The account concludes with several remedies involving the use of belladonna and opiates. Another section treats the curious affliction of navel worm, which Zwinger claims to have successfully treated by applying a fish to the navel; after a few hours the fish was found to be consumed. The process was repeated a few times until the fish was found to be intact – an indication that the worms had been evacuated. Some surgical procedures are described, including those for hare-lip, tumour of the lips and tonsils, ranula (swelling beneath the tongue), and imperforate anus and urethra. The book is open at "*Observatio* CXIV", a clinical description of infant hernia, with directions for its treatment.

Frid. Hoffmanni ... Tractatus huc usque seorsim nondum editus, De Morbis Infantum Præcipuis. Basileæ: Impensis Johannis Christ., 1741.

Friedrich Hoffmann (1660-1742) was one of the most revered physicians and medical theorists of his time. He studied under Wedel at Jena, receiving his M.D. in 1681, and became the first Professor of Medicine and Natural Philosophy at the newly founded University of Halle in 1693. He was also physician to Frederick I in Berlin. Hoffmann wrote two works on children's diseases: *Praxis Clinica Morborum Infantium* (1715); and *Medicinæ Rationalis Systematicæ Supplementum* (1740), which was reissued under various titles, including the one shown here. Hoffmann makes original contributions on infantile atrophy, mesenteric

fever, chlorosis (green complexion due to iron deficiency), whooping-cough, intestinal worms, and diseases of the fetus *in utero*. His very brief description of rubella (German measles) may be the first account of the disease. On the question of feeding, he condemns the practice of nurses chewing bread in the preparation of pap as unhygienic and potentially dangerous.

Nicolas Andry. *Orthopædia, or, The Art of Correcting and Preventing Deformities in Children*. London: Printed for A. Millar, 1743.

Nicolas Andry de Bois-Regard (1658-1742), at one time Professor of Medicine at the Collège Royale in Paris, published his *L'Orthopédie, ou, L'Art de Prevenir et de Corriger dans les Enfans les Difformités du Corps** in 1741, when he was eighty-

The orthopædic principle symbolized. Nicolas Andry, Orthopædia. *London, 1743.*

three years old. It is the first work dealing exclusively with orthopædics, a word which the author coined, and whose derivation is explained in the long preface.

The text is divided into four books: the first provides a general description of the external parts of the body; the second deals with deformities of the trunk; the third with those of the limbs; and the fourth with those of the head. Andry believed that the deformities of adolescence were the result of improper habits of posture acquired in childhood. Much of the blame he attributes to badly designed furniture, and tight fitting clothes. Wishing "to shew parents what they may practice themselves with regard to their children so as to give them a streight and agreeable look", Andry offers a series of preventive and rehabilitative measures. He discusses not only bodily deformities, but also disorders of the teeth and gums, mutism, speech defects, and blemishes. In book 4 there is a chapter on freckles, which the author regarded as a facial deformity. Another chapter, shown here, discusses marks upon the face, or "French envies", as Andry calls them, which are attributed to "certain longings which the mother has had during the time she was with child" – a commonly held belief at that time. The work is charmingly written, with many entertaining digressions, and is illustrated with fifteen finely engraved plates by James Hulett. The English translation, published in two volumes in 1742, contains the original illustrations, as well as Andry's inaugural thesis on the benefit of exercise on health, and a retort to adverse criticism of his book on orthopædics. A plate symbolically representing the orthopædic principle is displayed.

Joseph Hurlock. *A Practical Treatise upon Dentition, or, The Breeding of Teeth in Children*. London: Printed for the author; sold by C. Rivington, and S. Austen; and J. Hodges, 1742.

Dentistry, as a specialized branch of medicine, like pædiatrics, underwent a long gestation. It was not until the eighteenth century, with the publication of Pierre Fauchard's *Le Chirurgien Dentiste* (1728)*, that dental science came of age. In Britain the first writer to devote an entire work to dental science was Joseph Hurlock, and in so doing brought together dentistry and pædiatrics. Few details of the author's life are known, other than that he was a surgeon with a flourishing practice in London.

The title page to *A Practical Treatise* bears a quotation from Walter Harris' *De Morbis Acutis Infantum*, to the affect that complications from dentition are responsible for a great number of infant deaths – a belief that Hurlock shared. He supports this claim with some questionable statistics from the Bills of Mortality, in which death from teething are lumped together with those from convulsions, assumed to arise from teething, and smallpox. The first part of the book provides a thorough history of the various remedies given throughout the ages for difficulties associated with dentition, including the use of hare's brain as an emollient.

Like Ambroise Paré in France during the sixteenth century, and Richard Pemell in England during the seventeenth, Hurlock advocated the lancing of the gums to facilitate the eruption of the primary teeth, in order to avert fever, convulsions, and even death. He answers the various objections to this procedure, supporting his arguments with twenty case studies from his own practice. As a result of Hurlock's example, the lancing of gums became standard practice in British dentistry until well into the nineteenth century. A keen observer, Hurlock makes the connection between bad diet and tooth decay, and recommends that children be sent to the countryside for fresh air and be provided with wholesome food.

A Full View of all the Diseases Incident to Children. Containing a Translation of Dr. Harris's Book upon the Acute Diseases of Infants, and of the Eminent Dr. Boerhaave's Treatise upon all their Diseases, as well Acute as Chronical. Together with a Careful Abridgment of the Best Authors who have Wrote upon their Particular Diseases. London: Printed for A. Millar, 1742.

The year 1742, which saw the publication of Hurlock's pioneering book on dentition, also witnessed the appearance of the first anthology of children's diseases. A new English translation of the whole of Walter Harris' *De Morbis Acutis Infantum* forms the greater part of the anthology. But as Harris' work deals only with acute diseases, the anonymous compiler (believed to have been John Armstrong, poet, physician, and brother of George Armstrong) supplements Harris' text with selections on chronic diseases from the writings of eight eminent physicians, namely: Hermann Boerhaave (on children's diseases in general), Franciscus Sylvius (on thrush), Thomas Willis (on epilepsy), Thomas

Sydenham (on smallpox, and on measles), Nicolas Andry (on worms), John Burton (on chin-cough, i.e. whooping-cough), Francis Glisson (on rickets), and Richard Wiseman (on scrofula).

In the exhibition the opening page of Willis' contribution on epilepsy is displayed. Thomas Willis (1621-1675) is principally remembered for his pioneering work on neurology (a term he coined). His *Cerebri Anatome* (1664), which contains a description of the circle of arteries in the brain named after him ("the circle of Willis") is a medical classic. His nineteen-page account of infantile epilepsy is taken from his *Pathologiæ Cerebri et Nervosi Generis Specimen*,* first published at Oxford in 1667. Willis provides a good clinical description, based on post-mortem observation, and attributes the cause of the disorder to "inordinate motion of the spirits in the brain whence the whole nervous system is thrown into convulsions". Some of his medications, however, are questionable (powdered elk's hoof, and powdered human skull), and liberal use is made of mercury. Willis also believed in the restorative power of amulets.

William Cadogan. *An Essay upon Nursing, and the Management of Children, from their Birth to Three Years of Age*. London: Printed for J. Roberts, 1748.

William Cadogan (1711-1797) studied at Oxford and Leiden. After obtaining his M.D. in 1737, he set up practice in Bristol, eventually becoming physician to Bristol Royal Infirmary. His *Essay upon Nursing*, first published anonymously in 1748, was originally written as a letter to one of the governors of the London Foundling Hospital.

Deploring the high incidence of infant death in the Bills of Mortality, Cadogan identified the prevailing methods of infant care, in particular the practices of swaddling and overfeeding, as being the main contributing factors. Cadogan believed that swaddling constricted the bowels, limbs, and circulation, and recommended instead the wearing of loose, light, frequently changed clothing. On the question of nutrition, Cadogan was a strong advocate of maternal breast feeding. Advising against feeding immediately after birth, Cadogan recommended that infants should not be fed for one and a half days. Milk should be the infant's only sustenance for the first three months, after which simple but wholesome food should be introduced in moderate portions. Foods such as pap, panada, and gruel, are to be avoided. Mothers should feed their

infants four times a day, from both breasts, allowing them to take as much milk as they want. Cadogan was against the system of wet-nursing, but in situations where the mother was absent, as in the case of orphans and foundlings, the choice of a suitable wet nurse was a matter for serious consideration. She should be clean and healthy, paying particular attention to her diet, avoiding all alcohol, with the exception of small beer (a kind of light beer). Cadogan also emphasized the benefits of fresh air, exercise, and frequent baths. He was one of the first writers to oppose the prevalent belief that teething was a major threat to infants' lives, arguing that infection and scurvy were responsible for the great number of deaths of infants at the teething age.

A landmark in the history of infant management, Cadogan's *Essay*, is clearly and simply written for the benefit of laymen, and its arguments are based on the author's experience as physician, and as a parent. Indeed, it was the birth of his daughter in 1747 that first stirred his interest in the question of infant care. The General Committee of the Foundling Hospital was quick to recognize the practical value of Cadogan's work, by ordering its publication, and implementing its recommendations. In 1749 the Committee elected Cadogan a governor of the Hospital, and in 1754 he was appointed physician. The success of the *Essay* was immediate, and other writers were quick to endorse Cadogan's views. A second edition was required the same year, and by 1772 ten editions had appeared. The fourth edition*, published in 1750, was the first to identify Cadogan as the author. Cadogan was also author of an important work on gout, published in 1771*, which went through ten editions in two years.

Brouzet. *Essai sur l'Éducation Médicinale, des Enfans, et sur leurs Maladies*. A Paris: Chez la veuve Cavelier & fils, 1754.

Brouzet was physician-in-ordinary to Louis XV of France, and physician at the Royal Infirmary and Hospitals of Fontainebleau. His *Essai* contains many interesting observations on the state of pædiatrics in the mid-eighteenth century. He laments the slow progress of pædiatric knowledge, which, in his opinion, has been hampered by the entrustment of infant management to uneducated mothers, nurses or governesses, who have passed on their superstitious ignorance from one generation to the next. Infants are seldom under the supervision of a

physician, who, deprived of the opportunity of observing sick children, is largely inexperienced in treating their diseases. Brouzet proposes replacing the institution of wet-nursing with various kinds of artificial feeding. One of the recipes he gives is for a panada, which consists of boiling bread in wine or small beer with honey or sugar, reducing it to a jelly like consistency, and diluting with water. In a section on teeth, he emphasizes the importance of regular cleaning and maintenance under the supervision of a qualified dentist. *Essai sur l'Éducation Médicinale des Enfans* was considered to be of sufficient interest in Britain to warrant an English translation, published in 1755★.

François Boissier de La Croix de Sauvages. *Tractatus Duo Pathologici.* Amstelodami: Sumptibus fratrum de Tournes, 1760.

François Boissier de La Croix de Sauvages (1706-1767) was Professor of Botany at Montpellier, and a correspondent of Linnæus, who named a plant after him. Sauvages attempted to devise a system of classification for human diseases, similar to that developed by Linnæus for botany. His book *Tractatus Duo Pathologici* was published anonymously in 1760, and was reprinted posthumously, with his name on the title page, at Naples in 1778★. The first treatise, devoted to the diseases of children, is divided into 30 chapters, with a further seven articles on smallpox. The first three chapters, dealing with the care of the newborn, contain little that is new. The author repeats the nail test of Soranus to determine the quality of breast milk, and in the chapter on teething he advocates rubbing the gums with hare's brain. His remarks on infant diseases include some original material, based on his own clinical observations and post-mortem examination. In a general discussion of smallpox, he gives an account of chicken-pox, which he calls "variolis lymphaticis", and comes close to differentiating this disease from smallpox – a distinction that was eventually made by William Heberden in 1767 (see below).

Giovanni Verardi Zeviani. *Della Cura de'Bambini Attaccati dalla Rachitide.* Verona: Per Marco Moroni, 1761.

Giovanni Verardi Zeviani (1725-1808) practised medicine at Naples and Verona. His treatise on rickets made several minor contributions to the history and diagnostics of the disease. Questioning Glisson's assertion

that rickets was a new disease of the seventeenth century, Zeviani refers to an account of rickets made by Hieronymus Reusner in 1582. He also makes an important addition to the list of symptoms of the disease, by drawing attention to the contraction and wrinkling of the anus, in which the skin adheres to the neighbouring bones, sacrum and coccyx. Zeviani wrote four other medical works, including *Su le Numerosi Morti dei Bambini* (1775), with tables showing the high mortality among infants.

Jean-Louis-Charles Desessartz. *Traité de l'Education Corporelle des Enfans en Bas Age, ou, Reflexions-Pratiques sur les Moyens de Procurer une Meilleure Constitution aux Citoyens.* A Paris: Chez Jean-Thomas Herissant, 1760.

Jean-Louis-Charles Desessartz (1729-1811) studied medicine at Paris and Rheims. In 1770 he was appointed Professor of Surgery at the University of Paris, and in 1775 Professor of Pharmacy. Known as "the children's physician", he is best remembered for his work on the physical education of children. The treatise was reprinted in 1799*, and translated into German in 1763. Desessartz' preliminary remarks refer to the high number of infant deaths, largely due to careless or negligent wet-nurses, noting that of infants committed to the care of wet-nurses, only five percent survive. In a discussion on infant feeding, his chemical examination of the milk of various animals lay the foundation of a scientific method of nutrition, that was continued with such distinction by Underwood towards the end of the century.

Francis Home. *An Inquiry into the Nature, Cause, and Cure of the Croup.* Edinburgh: Printed for A. Kincaid and J. Bell, 1765.

Recognition of diphtheria as a specific disease was gradual. In earlier times it was often confused with other less dangerous forms of sore throat, especially scarlet fever and thrush. Before Pierre Bretonneau coined the name "diphtheria" in 1826 (after the Greek word for goatskin – an allusion to the grey necrotic false membrane that attends the disease), the malady, which claimed so many infant lives, was known under a variety of names. Ætius referred to it as "*ulcera Syriaca*", while in the eighteenth century it was known variously as "malignant ulcerous sore throat", *"angina suffocativa"*, *"morbus strangulatorius"*, *"suffocatio stridula"*, "sore throat distemper", and "croup". Although various aspects

of diphtheria had been described before, Francis Home (1719-1813), Professor of Materia Medica at Edinburgh, gave the first complete clinical account of the disease. Based on twelve case studies, some of them involving post-mortem examination, Home's account gives a detailed description of the membranous inflammation of the larynx and trachea. Among the other symptoms of diphtheria described by Home is the stridulous voice that he likens to the crowing of a cockerel.

Home was also an experimenter in medicine. Encouraged by the relative success of inoculation in the treatment of smallpox, he attempted a similar method in treating measles. During an epidemic at Edinburgh in 1758, he inoculated twelve children, aged between seven months and thirteen years, with the measles bacillus, obtained from the blood of affected persons. He observed that in all cases a milder form of the disease was induced in the patients. His account, complete with case studies, was published in his *Medical Facts and Experiments* (1759)★.

William Heberden, the Elder. *Commentaries on the History and Cure of Diseases*. 2nd edition. London: Printed for T. Payne, 1803.

William Heberden, the Elder (1710-1801) received his medical training at Cambridge, subsequently practising in London, where he was also active in the College of Physicians. On 11 August 1767, before the members of the College, he read a paper in Latin on chicken-pox – the first detailed description of the disease. Previous descriptions had regarded varicella (chicken-pox) as a mild form of variola (smallpox). Heberden's account was the first to make a definitive differentiation between the two diseases, though Sauvages had come close to making the distinction in 1760. The paper appeared in 1768 in the *Medical Transactions of the College of Physicians*, a publication founded on Heberden's initiative; it was republished in 1802 in *Commentarii de Morborum Historia et Curatione*★, a collection of Heberden's writings, published posthumously by his son, William Heberden, the Younger (1767-1845). The *Commentarii* were immediately translated into English as *Commentaries on the History and Cure of Diseases* – an indication of the disuse into which Latin, as the language of scientific discourse, was falling. Among these commentaries are classic accounts of *angina pectoris* (chest pains) and of rheumatic nodules on the fingers ("Heberden's nodules").

George Armstrong. *An Account of the Diseases most Incident to Children, from their Birth till the Age of Puberty; with a Successful Method of Treating them. To which is added, An Essay on Nursing. Also A General Account of the Dispensary for the Infant Poor, from its first Institution in 1769 to the Present Time.* London: Printed for T. Cadell, 1777.

On 24th April 1769 the Dispensary for the Relief of the Infant Poor, established by George Armstrong (1719-1789) at his own expense, opened in Red Lion Square, Holborn, thus becoming the first institution in Britain for the treatment of sick children. The Dispensary operated until December 1781, when, due to ill health and lack of public support, Armstrong was forced to cease operation. In its relatively brief existence, the Dispensary treated 35,000 children. Armstrong notes with pride that "no charitable institution was ever established, whereby so much good has been done, or so many lives saved at so small an expense, as by this very charity". Yet, despite the good work performed by the Dispensary, Armstrong's efforts were not acknowledged during his lifetime, and he died in obscurity.

In his book on the common ailments of children, entitled, *An Essay on the Diseases Most Fatal to Infants*, published in 1767, Armstrong deplores the neglect of children's diseases by both physicians and parents, and dismisses the excuse that since children are unable to relate their ailments, physicians cannot prescribe for them. Armstrong echoes William Cadogan in dispelling the myth of the mortality of teething. He gives one of the earliest accounts of pyloric stenosis, and recommends antimony for the treatment of whooping-cough (later confirmed by Lettsom). As a treatment for scrofula, he advocates sea air and bathing for urban children, and dry inland climate for children living on the coast. In commenting on artificial feeding, he states a preference for asses' milk over cow's. He also stresses the therapeutic value of rhubarb and alkalis, and warns against the dangers of opium. In succeeding editions Armstrong added more material, gleaned from his growing experience. The third edition, published in 1777 with the new title, *An Account of the Diseases Most Incident to Children*, was expanded to include the diseases of prepubescent children, and an account of the Dispensary. Displayed are the rules for the Dispensary.

The special experience accumulated at Armstrong's Dispensary provided a solid foundation for the study and advancement of pædiatric

medicine. The Dispensary also gave a powerful impetus to the movement that led ultimately to the creation of in-patient children's hospitals and to dispensary practice. In 1770 John Coakley Lettsom founded the Aldersgate Street Dispensary for adults, and by 1800 there were fourteen dispensaries operating in London, though none catering specifically to children. In 1815 the Universal Dispensary for Children was created by John Bennett Davis, and in 1852 Charles West founded the Hospital for Sick Children at Great Ormond Street in London.

Robert Whytt. *Observations on the Dropsy in the Brain.* Edinburgh: Printed for John Balfour, by Balfour, Auld, & Smellie, 1768.

Robert Whytt (1714-1766) studied at St. Andrews, Edinburgh, London, Paris, and Leiden, receiving his medical degree from the University of Rheims. In 1747 he was appointed Professor of Medicine at Edinburgh, and in 1761 was created physician to the King in Scotland.

Whytt's work on dropsy of the brain (tuberculous meningitis) in children, published posthumously by his son in 1768, describes a disease practically unknown, though its various symptoms had been alluded to earlier under the vague label of "phrenitis" or "hydrocephalus". Thomas Willis observed the placques and tubercules of the disease in 1682, and Sauvages gave a good account of the disease in 1763. Drawing his material from twenty cases, Whytt discerns three distinct stages of the disease, according to the behaviour of the pulse, which alternates between rapid and slow. Whytt's forty-eight page essay is notable for its brevity and lucidity, and has been described as "a masterpiece of clinical observation" (Still), and "one of the most remarkable clinical monographs ever written" (Ruhräh). It gave great impetus to the study of meningitis.

William Buchan. *Domestic Medicine, or, The Family Physician. Being an Attempt to Render the Medical Art more generally Useful, by Shewing People what is in their own Power both with Respect to the Prevention and Cure of Diseases.* Edinburgh: Printed by Balfour, Auld, and Smellie, 1769.

William Buchan (1729-1805) took his medical degree at Edinburgh, before establishing a practice in Yorkshire. In 1759 the London Foundling Hospital, founded in 1739, opened a number of branch hospitals, including one at Ackworth in Yorkshire, to which Buchan was appointed physician.

During his tenure at Ackworth, Buchan wrote his *Domestic Medicine*, a voluminous work of over six hundred pages. Intended as a general book of medical advice, it includes large sections on the care of children, based on the author's experience and observations at Ackworth. A great advocate of preventive medicine, he endorsed the views of William Cadogan, that a wholesome diet, exercise, appropriate clothing, and proper hygiene provide the key to good health in infants. Emphasizing the benefits of fresh air, he urges parents to take newborns into the open air as soon as possible, and attributes the high infant mortality rate in the workhouses to lack of good ventilation and neglect of exercise. Buchan was one of the first to question Walter Harris' theory of the acidic origin of infant diseases, by suggesting that acidity was the effect rather than the cause of illness, and that proper feeding was much more beneficial than the administering of alkaline medicines. Medication, he believed, should only be given when necessary, and at Ackworth it was given only under his direct supervision. As a result of the measures recommended by Buchan, of the 2664 children admitted to Ackworth, only six percent died, a remarkable record for the time.

An extremely popular book, *Domestic Medicine* went through nineteen editons in Great Britain alone, and many more in the United States during the author's lifetime, and was translated into several languages. The Russian translation earned Buchan a gold medal from the Empress Catherine.

Robert Hamilton. "An Account of a Distemper, by the Common People in England Vulgarly Called the Mumps." *Transactions of the Royal Society of Edinburgh*, v. 2, pt. 2 (1790), 59-72.

Robert Hamilton (1721-1793), after receiving his M.D. at Glasgow, practised medicine at King's Lynn in Norfolk. A member of the Royal Society of Edinburgh, he read this account of mumps before the Society (known prior to 1783 as the Philosophical Society of Edinburgh) on 5 August 1773. It was the first account to note the occurrence of orchitis (inflammation of the testes) and parotitis (inflammation of the salivary glands) as complications of mumps. Before Hamilton's description, mumps, or *"angina maxillaris"*, as he preferred to call it, received little attention in medical text-books. Although it was another seventeen years before the paper was published, its contents were known in

medical circles and references to mumps began to appear in medical literature. The third edition of William Cullen's *First Lines of the Practice of Physic*, published in 1781, for instance, includes an account of the disease.

Nils Rosen von Rosenstein. *The Diseases of Children, and their Remedies.* Translated into English by Andrew Sparrman, M.D. London: Printed for T. Cadell, 1776.

Nils Rosen (1706-1773) studied medicine in Halle, Leiden, Paris, and finally at the University of Harderwijk in Holland, where he obtained his M.D. in 1731. Returning to his native Sweden, he became physician to the King of Sweden. In 1741 he was appointed Professor of Botany at Uppsala, while his friend, Carl Linnæus, was appointed Professor of Medicine at the same institution. Fortunately, with the chancellor's consent, the appointments were exchanged, with each man being installed in his rightful place. In 1762 Rosen was ennobled to Rosen von Rosenstein.

Rosen believed that the alarmingly high infant mortality was the result of improper care and feeding. Between 1753 and 1771 he wrote a series of popular articles on infant care in the Swedish almanacs, which reached a wide audience. In 1764 the articles that had appeared thus far were collected and published in book form under the title: *Underrättelser om Barn-Sjukdomar och deras Bote-Medel.* The book became a classic, being reprinted in Swedish until 1851, and translated into seven other languages; in all over twenty-five editions were published. The English version, which appeared in 1776, was translated by Anders Sparrman (1748-1820) while on board H.M.S. *Resolution*, during Captain Cook's voyage round the world between 1772 and 1775.

Rosen's clinical descriptions were of the greatest value to physicians and laymen alike. He provides an excellent account of an epidemic of scarlet fever in Sweden in 1741 that was an advance on Sydenham's description of 1675. In a good clinical description of whooping-cough, he comes close to an understanding of the bacterial origin of the disease. The long section on smallpox is especially rich in detail, and inoculation is strongly advocated. With a Swedish penchant for classification, Rosen tackles the difficult task of classifying infant diarrhoea, distinguishing

fourteen categories. Other infant diseases and disorders discussed and classified are vomiting, of which eleven types are distinguished; and worms. In treating the parasite ascarides (thread worms), as an alternative to a purgative of fresh carrots or birch juice, Rosen offers the following curious advice:

> The *ascarides* are often expelled ... by tying a string to a piece of fresh pork, introducing it into the *intestinum rectum*, and pulling it out again after a little time; for a number of these worms will then always follow. This must be done repeatedly, changing the pork at each time, in order to evacuate them all.

Some of his other recommendations seem equally strange today. Nevertheless, Rosen's work was one of the most progressive books on pædiatrics to date, and the author is regarded as one of the founding fathers of modern pædiatrics. In 1845, seventy-two years after Rosen's death, a chair of pædiatrics was established at Stockholm – the first such chair in the world.

William Moss. *An Essay on the Management and Nursing of Children in the Earlier Periods of Infancy*. London: Printed for J. Johnson, 1781.

William Moss was a surgeon at the Liverpool Lying-In Charity, and an active member of the Liverpool Inoculation Society, founded in 1781 to inoculate the poor against smallpox. His *Essay on the Management and Nursing of Children* is a book of domestic medicine, intended for the layman, but with frequent footnotes addressed "to the medical reader". Moss devotes much space to the subject of feeding. He opposes the addition of sugar to infants' food, and recommends its elimination, together with butter and salt, from the diet of children of all ages. In his discussion of milk, he compares the milk of various animals, and finds that asses' milk is the closest to human milk. Moss was a great advocate of the potato, which he describes as "one of the greatest blessings bestowed upon this kingdom as an article of food". He recommends the addition of potato flour to milk as a supplement to breast milk during weaning. In 1794 a second edition, revised and much enlarged*, was published.

Michael Underwood. *A Treatise on the Diseases of Children. With Directions for the Management of Infants from the Birth, Especially such as are Brought up by Hand.* London: Printed for J. Mathews, 1784.

Michael Underwood. *A Treatise on the Diseases of Children.* A new edition, revised and enlarged. London: Printed for J. Mathews, 1789.

Michael Underwood. *A Treatise on the Diseases of Children.* A new edition, revised and enlarged. London: Printed for J. Mathews, 1795.

Michael Underwood. *A Treatise on the Diseases of Children. With Directions for the Management of Infants from the Birth.* The fourth edition, revised and enlarged. London: Printed for J. Mathews, 1799.

Michael Underwood (1737-1820) studied at St. George's Hospital in London under Caesar Hawkins, before becoming a surgeon at the British Lying-In Hospital. Receiving his licence to practice midwifery from the College of Physicians in 1784, he attended Caroline, the Princess of Wales, at the birth of Princess Charlotte in 1796. It was in the field of pædiatrics, rather than obstetrics, however, that Underwood left his mark.

A Treatise on the Diseases of Children, first issued in 1784, was aptly dedicated to Queen Charlotte, who bore George III fifteen children. Far superior to anything that preceded it, the *Treatise* became the major textbook of pædiatric practice for the next sixty years, and inaugurated the modern era of pædiatric medicine. Many editions were published in Britain and the United States, the edition of 1819 being the last edited by Underwood. The text of the *Treatise* underwent constant revision in the light of the most recent research and discoveries in the field of infant care and diseases. There was, moreover, a shift in emphasis from the first edition, intended primarily for parents, to later editions which were aimed at the medical reader. The first edition contains the first account of *sclerema neonatorum*, known as "Underwood's disease". In the second edition, expanded to two volumes in 1789, Underwood adds descriptions of apnoea (respiratory arrest), and malignant jaundice in the newborn, and the first account of poliomyelitis ("debility of the lower extremities"). In the fourth edition, published in three volumes in 1799, there are descriptions of mastitis (inflammation of the breast) in prepubescent children, and a very important study of congenital heart disease. This edition also contains an interesting investigation into the

chemistry of milk, represented in the chart displayed in the exhibition.

In 1801, suffering from depression, Underwood gave up his practice and lived the rest of his life in seclusion. He died impecunious in 1820. Selections from the 122 volumes of the diary that he kept for sixty years were published in 1824, the proceeds of which went to his indigent daughter.

Bernhard Christoph Faust. *Catechism of Health, for the Use of Schools, and for Domestic Instruction.* Translated from the last improved German edition of this work, by J.H. Basse. London: Printed for C. Dilly, 1794.

Bernhard Christoph Faust (1755-1842) was educated at Kassel, Göttingen, and Rinteln, where he received his M.D. in 1777. Devoting his professional life to raising public awareness of hygiene and diet, he expounds his ideas in *Gesundheits-Katechismus zum Gebrauche in den Schulen und beim häuslichen Unterricht*, first published in 1794; it was frequently reprinted, and translated into several languages.

A disciple of Rousseau, Faust wished to imbue questions of hygiene with a strong ethical spirit. The *Catechism*, addressed to schoolmasters, is arranged in a series of questions and answers, intended to stimulate discussion and to provide children with a rationale for hygienic practices and healthy diet. Great attention is paid to clothing, exercise, and nourishment. On the subject of drink, he is opposed to all types of alcoholic beverages, except light beer for adults, as well as hot drinks: "the only wholesome beverage is cold water; all warm drinks weaken the stomach and body; they do not cleanse the bowels, nor purify the blood, and are, therefore, unwholesome and hurtful to health". This English translation of Faust's work is open to a section dealing with the harmful effects of tobacco and snuff.

Edward Jenner. *An Inquiry into the Causes and Effects of the Variolæ Vaccinæ, a Disease Discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the Name of the Cow Pox.* London: Printed for the author, by Sampson Low; and sold by Law; and Murray and Highley, 1798.

Smallpox was known in the East from early times, and was one of the factors in the fall of the Roman Empire. In Europe the disease was known in the Middle Ages, but did not become common until the

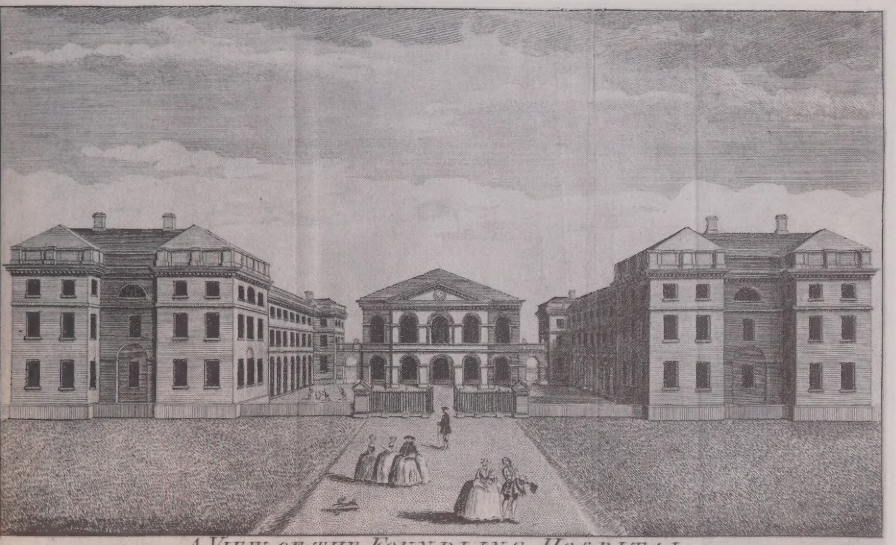
seventeenth century, when frequent epidemics claimed thousands of lives. Children in particular were vulnerable to the ravages of the disease. In the early eighteenth century the practice of inoculation, or "variolation" as it became known, was introduced into England from Turkey by Lady Mary Wortley Montagu, who had witnessed its success in Constantinople during a residence there. Inoculation involved infecting the patient with the smallpox virus, taken from the pustule of a carrier of the disease. Recipients contracted a mild form of smallpox, from which they recovered. Usually effective, the treatment was not always successful and fatalities occurred. The method was controversial and engendered a great number of publications arguing in favour of or against inoculation.

Edward Jenner (1749-1823), a country practitioner in Gloucestershire, learned that milkmaids who had contracted cow-pox from cattle did not contract smallpox. With lymph taken from Sarah Nelmes, an infected milkmaid, he inoculated James Phipps, an eight-year old boy. Two months later Jenner injected James with the smallpox virus, to which the boy proved resistant. Jenner reported the results of his experiment in this book, published at his own expense. The new procedure became known as vaccination (from the Latin *vacca* meaning "cow"), and gradually became universally accepted. Vaccination also lay the foundation for the modern sciences of immunology and virology (Jenner was the first to use the word "virus"). Subsequently, preventive inoculation against scarlet fever, typhoid, diphtheria, whooping-cough, bubonic plague, cholera, yellow fever, and tetanus were developed. Today, smallpox has been completely eradicated.

Jenner's *Inquiry* includes four hand-coloured plates, which show the arm and hand of Sarah Nelmes, illustrating the position and development of the cow-pox pustules.

CASE 8 THE LONDON FOUNDLING HOSPITAL

The inhumane treatment to which unwanted children have been subjected is one of the saddest chapters in the history of mankind. The widespread practices in antiquity of infanticide, exposure, abandonment, and the sale of children, particularly of female offspring, have already



A View of the Foundling Hospital.

been referred to. Although the advent of Christianity and Islam brought some alleviation in the situation of unwanted children, progress towards an enlightened humane attitude was slow. In the fifth and sixth centuries Councils of the Roman Church decreed that unwanted children should be deposited in special revolving cribs located at church doors. Tours, as these receptacles were called, continued in various forms right up to the nineteenth century. The first recorded asylum for foundlings is that established in 787 by Archbishop Datheus of Milan. Elsewhere in Italy and in other parts of Europe, the institutionalized care of abandoned and orphaned children was sporadic, and was performed largely by the Church. In the eighth century a refuge for foundlings at Trier is mentioned. Another was instituted in Montpellier in 1070. The *Conservatorio della Ruota*, which took its name from the revolving tour by which infants were admitted, was founded by Pope Innocent III in Rome in 1198, while the *Santa Maria degli Innocenti* in Florence dates from 1316. In France the Bishop of Paris founded the *Hospice du Saint Esprit* in 1362, which was followed in 1536 with the establishment by

Captn. Thomas Coram. Engraved by Brooke from the painting by Balthasar Nebot, 1751.

Francis I of the *Hospice des Enfants-Rouges*. In 1638 *L'Hôpital des Enfants-Trouvés* was opened, and is still in existence. In the reigns of Louis XIII and Louis XIV considerable advances were made, largely through the efforts of Saint Vincent de Paul, in involving the state in the administration and maintenance of homes for foundlings.

In England the early care of foundlings was performed, as elsewhere, by religious communities. By the eighteenth century the situation was so grave that the Church could no longer cope with the burgeoning numbers of children abandoned by their parents, and it was left to middle-class citizens to take the initiative in rousing public awareness of the plight of foundlings. Writing in *The Guardian* in 1714, Joseph Addison deplored the lack of provision for foundlings in Britain, and suggested following the example of other countries by establishing an institution for their care. The existing Poor Laws were woefully inadequate, and in the workhouses, established in 1722, infant mortality was appallingly high. Thomas Coram (1668-1751), a retired sea-captain, was deeply moved by the daily sight of "infants abandoned on dunghills" by their cruel or despairing parents in the streets of London. For seventeen years he toiled tirelessly, organizing petitions, and mobilizing support for the creation of a Foundling Hospital. In 1739 his efforts were rewarded when he obtained a Royal Charter establishing a Hospital for the Maintenance and Education of Exposed and Deserted Young Children, to give it its official title, or the Foundling Hospital as it became generally known.

The new institution opened on 25 March 1741 in temporary quarters in Hatton Garden, with thirty children being admitted. During the first year a further 106 were admitted. In 1742 the Hospital acquired fifty-six acres in Bloomsbury Fields from the Earl of Salisbury for £7000 and the erection of a new hospital commenced. It was completed in 1747 and remained at this site until 1926. Between 1741 and 1756 the total number of admissions was 1384. By 1756 applications for admission were placing such severe strain on the Hospital's resources, that the Board of Governors petitioned Parliament for financial assistance. Grants were duly given, but on condition that all applicants for admission under a

W. Hogarth inv. F. Morellon La Cave Sculp London

To all to whom these Presents shall come.

Whereas our Sovereign Lord the King hath been graciously pleased to take into His Princely and tender Consideration the deplorable Case of great Numbers of Newborn Children daily exposed to Destruction, by the cruelty or poverty of their Parents, and having by His **Royal Charter** bearing date the 17th day of October 1739, constituted a Body Politick and Corporate, by the Name of The Governors and Guardians of the Hofpital for the Maintenance and Education of expofed and deferted young Children; which Corporation is fully impowered to receive & apply the Charities of all compaſsionate Persons who shall contribute towards erecting & establishing the same; **And Whereas** His Majesty for the better & more succeſsful carrying on the said good Purpofes, **Hath** by His said **Charter** granted to the said Corporation and their Succeſsors full & ample Power to authorize such Persons as they shall think fit to take Subscriptions, and to ask and receive of all or any of His Majesty's good Subjects, such Monies as shall by any Person or Persons, Bodies Politick and Corporate, Companies and other Societies be contributed and given for the Purpofes aforesaid. **Now know Ye** that We the said Governors & Guardians being well aſsur'd of the great Charity & Integrity of
and that
greatly desire the Succeſs & Accomplishment of so excellent a Work; **Have** by Virtue of the said Power granted to Us, authorized & appointed, and by these Presents **Do** authorize & appoint the said to take Subscriptions and to receive gather & collect such Monies as shall by any Person or Persons, Bodies Politick & Corporate, Companies & other Societies, be contributed & given for the Purposes aforesaid, and to transmit with all convenient speed, the Monies so Collected and Received, into the Bank of England for the use of this Corporation, And the Receipt for the same to our Treasurer for the time being, Together with the Names of the Contributors, except such as shall desire to be concealed, and in that Case to insert the Sums only, in order that We the said Governors & Guardians may be enabled from time to time to Publish perfect Accounts of such Benefactions. Given under our Common Seal the
Day of 17

By Order of the said Governors & Guardians.

A form granting power of attorney from the governors and guardians of the Foundling Hospital. The head-piece is engraved by William Hogarth.

certain age be accepted. Between 1756 and 1757 the number of foundlings admitted reached 5618. In order to meet the increased demand, six branch hospitals were opened in various parts of the country, operating until 1760 when Parliament stopped its grants. Thereafter the Hospital admitted foundlings on a ballot system.

The mortality rate at the Hospital was sometimes very high, reaching eighty-one percent between 1758 and 1760. Much of this can be attributed to the abuses to which the system was prone. Many parish workhouses simply rid themselves of the financial burden of maintaining the children under their care by placing them in the Foundling Hospital. Parents also delivered their dying children to the Hospital in order to save themselves the expense of burial. Though high, the death rate in the Hospital was certainly less than in other public institutions, especially the workhouses, where infant mortality was sometimes one hundred percent. Between 1775 and 1796 the death rate at the Dublin Foundling Hospital was 99.6%, while it reached eighty percent at the Paris asylums for foundlings between 1771 and 1777.

To receive new foundlings, a basket was hung at the Hospital gates in which the infant was deposited after its mother had rung the bell. One of the earliest regulations requested that those bringing children to the Hospital "affix on them some particular writing, or other distinguishing mark or token". These tokens took a variety of forms – pieces of cloth, coins, ribbons, shawls – on which the child's name and date of birth might be engraved or written. Sometimes the writing was in the form of pathetic verses:

> Go gentle babe, thy future life be spent
> In virtuous purity, and calm content;
> Life's sunshine bless thee, and no anxious care
> Sit on thy brow and draw the falling tear;
> Thy country's grateful servant may'st thou prove
> And all thy life be happiness and love.

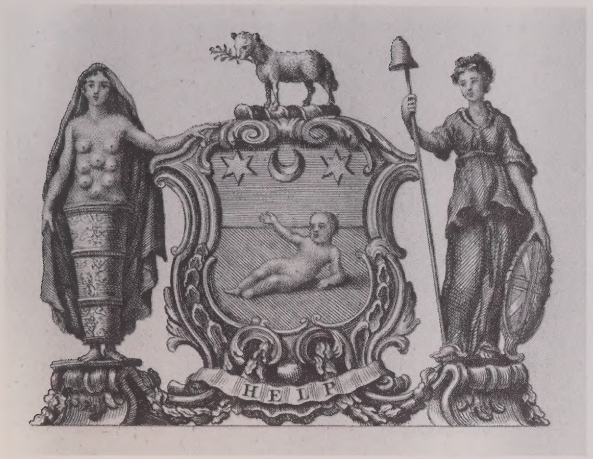
On admission the child's real identity was recorded confidentially in a ledger. Each child was then baptised, and given a new name. After a medical examination the child was inoculated against smallpox, and dispatched to a suitable wet nurse in the country. On reaching five years the child was returned to the Hospital to be given a rudimentary education and

taught handicrafts. In adolescence boys were usually apprenticed in trades or enlisted in the military; girls entered domestic service.

Great care was taken over the medical and nutritional needs of the foundlings. Programs of inoculation against smallpox were carried out under the supervision of a specially appointed physician. The first appointment was Richard Conyers, who was succeeded in 1754 by William Cadogan. Sir Hans Sloane was a medical advisor to the Hospital. Several successful experiments in inoculation techniques were performed at the Hospital. In 1756 Cadogan inoculated by friction rather than by the usual method of incision. In 1768 William Watson began to omit the drastic program of purging and bleeding that preceded inoculation, demonstrating that such measures were superfluous.

In bringing to public attention the terrible abuses to which children were subjected, the foundation of the Foundling Hospital won widespread sympathy and support, especially among the aristocracy, and high society. A number of prominent artists formed a close association with the Hospital, none more so than William Hogarth, who made many generous donations. Among the most notable of Hogarth's gifts were his paintings of "The March to Finchley", and "Moses Brought to Pharaoh's Daughter". Hogarth's painting of Thomas Coram was described by him as "the portrait which I painted with most pleasure and in which I particularly wished to excel ..." Hogarth also enjoined his fellow artists to render their services in adorning the walls of the Hospital. Such was their response that the Hospital became the favourite haunt of fashionable society. The establishment of the Royal Academy in 1769 is said to have been the direct result of the association between the Hospital and art.

Another prominent benefactor was George Frideric Handel. His oratorio "Messiah", which had premiered in Dublin in 1742, was performed at the Hospital at a ceremony, attended by one thousand people, to commemorate the composer's donation of an organ to the Chapel in May 1750. Performances of "Messiah" were regularly given at the Hospital and became a major source of revenue. Handel subsequently bequeathed the manuscript of the musical score to the Hospital. In the nineteenth century Charles Dickens, living in nearby Doughty Street, took a keen interest in the Hospital, and gave a vivid description of it in an article entitled "Received, a blank child", published in the March 19, 1853 issue of his periodical *Household Words*.

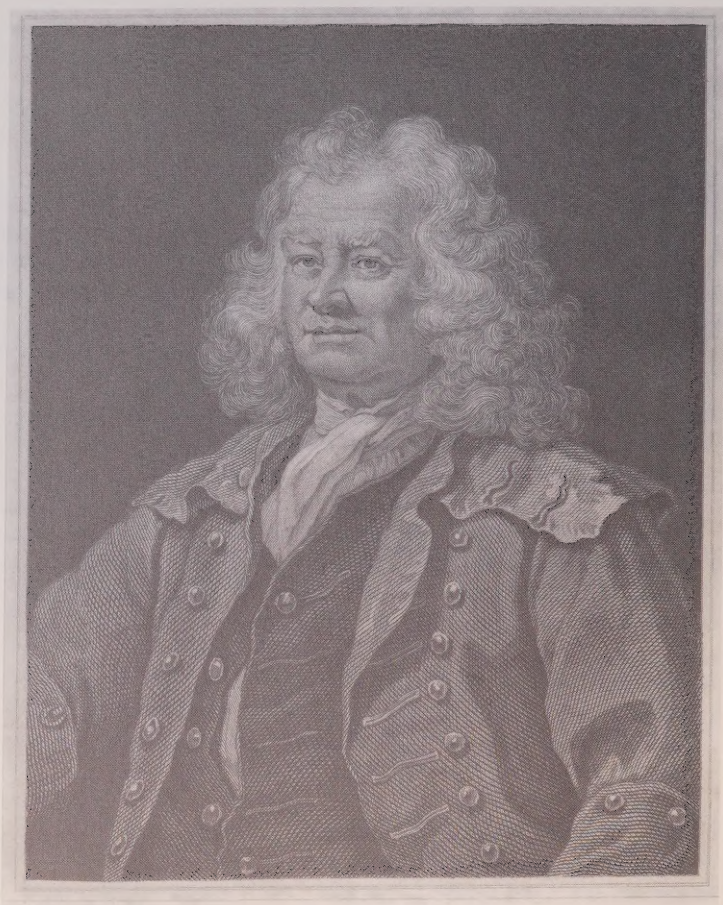


The arms of the London Foundling Hospital, designed and engraved by William Hogarth.

The Foundling Hospital was a major landmark in the history of British pædiatrics, and prompted a number of important works on the care of children and the treatment of children's diseases in the years immediately following its institution.

Richard Brocklesby. *Private Virtue and Publick Spirit Display'd. In a Succinct Essay on the Character of Capt. Thomas Coram, who deceased the 29th of March, and was Interr'd in the Chapel of the Foundling Hospital (a Charity Established by his Solicitation), April 3d 1751.* London: Printed for J. Roberts, 1751.

Coram was seventy-one when the Foundling Hospital opened its doors for the first time. In 1742, following a disagreement with the Governors, he left the Board and had little contact with the Hospital thereafter. His final years were marked by financial hardship, which was partially relieved in 1749 by a subscription raised for him by his friends. He died on 29 March 1751. The funeral service was held at the Hospital Chapel, and his body laid to rest in the Chapel's vault. This eulogy, written anonymously by his friend, the army surgeon Richard Brocklesby (1722-1797), was issued within days of his death.



Portrait of Thomas Coram, engraved by J.W. Cook after Hogarth

The Report of the General Committee for Directing, Managing, and Transacting the Business, Affairs, Estate, and Effects of the Corporation of the Governors and Guardians of the Hospital for the Maintenance and Education of Exposed and Deserted Young Children. London: Printed by John Baskett, 1740.

This is the first publication of the Foundling Hospital, issued during its inaugural year. It is essentially a plan of action for implementing the terms of the Royal Charter, and deals with such matters as the reception, maintenance and placing out of children, the choice of nurses, and the methods for appointing the various staff and executive positions. Chapter 2, displayed in the exhibition, describes the choice and duties of wet and dry nurses.

An Account of the Hospital for the Maintenance and Education of Exposed and Deserted Young Children. London, 1759.

This *Account*, published by order of the Hospital Governors, contains several important documents relating to the founding of the Hospital, including the Royal Charter of 1739, the Act of Parliament confirming the Charter, the by-laws and regulations of the Hospital, and the annual accounts from 1739 to 1758. The title page displays the Hospital's arms, designed by Hogarth in 1741. The shield shows a naked and exposed child extending its arm in supplication. The supporters are the multi-breasted female figure of Diana, representing motherhood, and Britannia holding a staff and cap of liberty. The crest is a lamb, symbol of innocence, holding in its mouth a sprig of thyme. The simple, yet poignant motto "Help" completes the arms.

Psalms, Hymns & Anthems, used in the Chapel of the Hospital for the Maintenance & Education of Exposed & Deserted Young Children. [London]: T. Landers, 1774.

Musical performances by foundlings became a feature of the Hospital's activities. The singing by the children in the Hospital Chapel attracted many visitors who left generous donations of money. The words to some of the hymns were undoubtedly calculated to encourage benefactors to make further donations. The first line of "The Foundling Hospital Anthem", composed by Handel, is: "Blessed are They That

Consider the Poor". Other hymns, however, intended to instill feelings of humility and gratitude in the children, could only have reminded them of their humiliating unfortunate origins:

> Wash off my soul offence,
> And Cleanse me from my Sin;
> For I confess my crime, and see
> How great my guilt has been.

The book is open at "The Foundling's Hymn", which was adapted from Psalm 27 by Handel's amanuensis, John Christopher Smith (1712-1795). Smith was appointed first organist of the Hospital's Chapel in 1754.

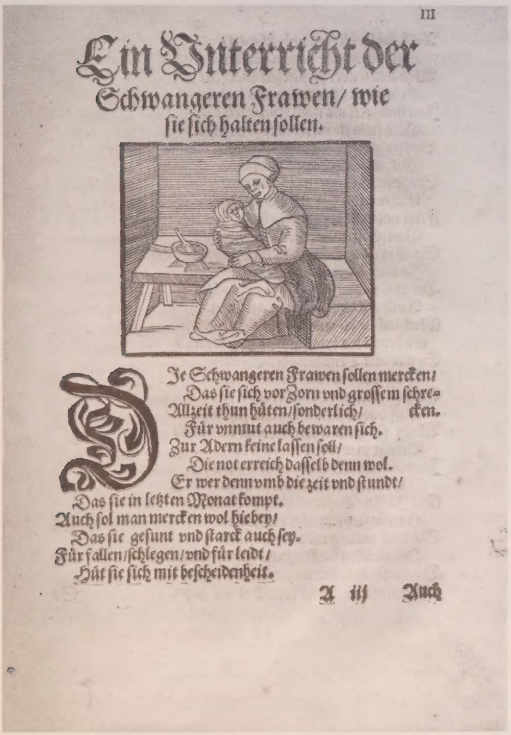
READING ROOM

PÆDIATRIC POETRY

Poetry might appear to be an inappropriate medium for the transmission of medical ideas, yet there is a surprisingly long tradition of medical verse. The famous poem *Regimen Sanitatis Salernitatum*, composed in verse during the fourteenth century, was one of the first and most popular medical works to be printed. During the Renaissance, persons entering university received a broad humanistic education that included rhetoric and poetics, as well as medicine. Girolamo Fracastoro's famous treatise *Syphilis* (1530), for instance, was composed in Latin hexameters. The sixteenth-century French poet Rabelais, best known for his *Gargantua et Pantagruel*, was also a qualified man of medicine. Many other examples could be cited. One branch of medicine that has received more than its fair share of poetic treatment is pædiatrics. Much of the pædiatric poetry is either poor in poetic quality or in medical merit. But some verses rise above the general mediocrity. Didactic in nature, and often rich in poetic cliché, they occasionally impart useful medical knowledge.

Heinrich von Louffenberg. *"Ein Unterricht der schwangeren Frawen, wie sie sich halten sollen"*. In *Ein Regiment der Gesuntheit, für die jungen Kinder*. Gedruckt zu Franckfurdt am Mayn: Durch Hermann Gülfferichen, 1550.

The earliest known pædiatric poem was written in the the old Swabian dialect of German in 1429 by Heinrich von Louffenberg (1391-1460), a priest of Freiburg. Entitled *Versehung des Leibs*, it was printed for the first time in 1491 at Augsburg. In 1532 the poem was reworked into modern German and reprinted in a volume entitled *Ein Regiment der Gesuntheit, für die jungen Kinder*, which also included the text of Metlinger's *Regiment*. The names of neither Metlinger nor Louffenberg appear in the book, which was reprinted in 1544, 1549 and 1550. The new version of Louffenberg's poem is entitled *Ein Unterricht der schwangeren Frawen, wie sie sich halten sollen*, and is accompanied by several woodcut illustrations. Composed in rhyming couplets, the poem gives little more than rudimentary advice on child care, and much of that advice is questionable. Shown here are sections on the care of the newborn, and instructions on bathing infants. Louffenberg repeats the age-old recommendation of salting the newborn's body:



III

Ein Unterricht der Schwangeren Frawen/ wie sie sich halten sollen.

Je Schwangeren Frawen sollen mercken/
Das sie sich vor Zorn vnd grossem schre-
Allzeit thun hüten/sonderlich/ cken.
Für vnnutz auch bewaren sich.
Zur Adern keine lassen soll/
Die not erreich dasselb denn wol.
Er wer denn vmb die zeit vnd stundt/
Das sie in letzten Monat kompt.
Auch sol man mercken wol hiebey/
Das sie gesunt vnd starck auch sey.
Für fallen/schlegen/vnd für leidt/
Hüt sie sich mit bescheidenheit.

A iij Auch

The first thing you ought to do after the birth of the child is to pound together salt and roses in proper

Opening lines from Louffenberg's Ein Unterricht der schwangeren Frawen, wie sie sich halten sollen. *Franckfurdt am Mayn, 1550.*

quantity and sprinkle and clean with this mixture body, face, arms and legs of the child. Or rub it with a salve of acorn oil, for this will agree well with the child, and will strengthen all its limbs; it should also harden the skin.

[translated by Hermann Collitz]

Luigi Tansillo. *La Balia*. Pubblicato ora la prima volta con annotazioni da Gio. Antonio Ranza. Vercelli: Presso il Panialis, 1767.

Luigi Tansillo. *The Nurse, a Poem*. Translated from the Italian of Luigi Tansillo, by William Roscoe. Liverpool: Printed by J. M'Creery, for Cadell and Davies, London, 1798.

Poet and soldier, Luigi Tansillo (1510-1568) belonged to a group of illustrious poets of sixteenth-century Italy that included Ariosto, Tasso, and Bembo. The manuscript of *La Balia* was discovered only in 1767, two hundred years after Tansillo's death, by Giovanni Antonio Ranza, Professor of Literature in Vercelli, who edited the poem for publication. In 1798 an edition accompanied by a parallel English translation was undertaken by William Roscoe, banker and M.P. of Liverpool, and author of the children's verses *The Butterfly's Ball*, and *The Grasshoppers' Feast*.

Tansillo's poem is a celebration of the female breast, and a commendation of maternal breast feeding. The poet is eager to point out the advantages of mother's milk and maternal care, and has harsh words for the widespread practice of wet-nursing. More than two centuries later, Roscoe, in the preface to his edition, reports that "... the custom, still so prevalent, of committing the children of the richer and middle ranks of society to be brought up by the poor, is ... one of the most efficacious, and like all other vicious institutions, its effects are injurious to all the parties who engage in it". Roscoe echoes the sentiments of Tansillo in condemning wet-nursing: "the assistance of a nurse is not then intended as a benefit to the child, but as a licence to the mother to pursue her gratifications, without those restraints which the performance of her own proper and indispensible duties would impose on her ..."

The original Italian edition is opened at the title page, which curiously includes an engraved vignette of two country wet-nurses attending their wards, in direct contradiction to Tansillo's beliefs.

LA BALIA

POEMETTO DI

LUIGI TANSILLO

PUBBLICATO ORA LA PRIMA VOLTA

CON ANNOTAZIONI

D A

GIO. ANTONIO RANZA

Regio Profeſsore di Umane Lettere

IN VERCELLI.

VERCELLI;

PRESSO IL PANIALIS

MDCCLXVII.

Title page of L. Tansillo's La Balia.

Roscoe's edition is open at a page showing the Italian original with Roscoe's own rather free verse translation on the opposite page.

Scévole de Sainte-Marthe. *La Maniere de Nourrir les Enfans a la Mammelle.* A Paris: Chez Guillaume de Luyne ...; Claude Barbin ...; et Laurent ..., 1698.

Scévole de Sainte-Marthe. *Pædotrophia, or, The Art of Nursing and Rearing Children. A Poem in Three Books.* Translated from the Latin of Scevole de St. Marthe ... by H.W. Tytler. London: Printed, for the author, by John Nichols ..., 1797.

Scévole de Sainte-Marthe (1536–1623) came from a literary family. He was renowned as a poet during his own lifetime, and was visited by Charles I of England when Prince of Wales. The genesis of the poem, and a summary of its contents (together with that of Quillet's *Callipædia*), is related by Nicolas Andry in the preface to his *L'Orthopédie* (1741).* It is said that when the life of his infant son was in danger, despite the efforts of the physicians, Sainte-Marthe, who had no medical training, hastily read all he could on medicine and successfully treated the child himself. The amateur medic recorded what he learned about infant care in the form of a poem, written in Latin hexameters, and published for the first time in 1584 with the title *Pædiatrophiæ Libri Tres.* The poem was dedicated to Henri III, who invited Sainte-Marthe to translate it into French – an undertaking that was only partially achieved. Many editions of the poem, in Latin, French, and other languages appeared over a long period. The edition in the exhibition consists of the Latin verse text, with a parallel French prose translation by the author's son, Abel de Sainte-Marthe.

The poem is divided into three parts. The first deals with antenatal care, the regime of the mother during pregnancy, and parturition. Book 2 treats of infant care during the immediate postnatal period, the choice of a wet-nurse, feeding, and weaning. Book 3 discusses such disorders of infancy as inflammation of the navel, ranula, teething, worms, prolapse of the bowel, and smallpox. Considerable space is devoted to smallpox, a disease with which Sainte-Marthe was well acquainted, having lost two of his own children to the disease.

An English translation was published in 1710 together with a translation of Claude Quillet's *Callipædia.* In 1797 a second English

translation, by Henry William Tytler (1752-1808), physician and translator of Callimachus, was published with medical and historical notes, and a hundred-page biographical sketch of Sainte-Marthe by Gabriel Michel. Displayed is a section from Book 3 describing tonsillitis.

Claude Quillet. *Calvidii Leti Callipædia, seu, De Pulchræ Prolis Habendæ Ratione.* Lugduni Batavorum: Veneunt Parisiis, apud Thomam Jolly, 1655.

Claude Quillet. *Callipædia. A Poem in Four Books. With some other Pieces.* Written in Latin by Claudius Quillet, made English by N. Rowe, Esq. London: Printed for E. Sanger, and E. Curll, 1712.

Claude Quillet. *Callipædia, or, The Art of Getting Pretty Children.* In Four Books, with Cuts. Translated from the original Latin of Claudius Quilletus by Mr. Will. Oldisworth. The second edition, corrected. London: Printed for Bernard Lintot, 1719.

In the wake of the infamous demonology trial of Urbain Grandier at Loudun in 1634, Claude Quillet (1602-1661) fled France for Italy, where he took holy orders. In 1655 he published his poem consisting of over two thousand Latin hexameters, entitled *Callipædia*, at Leiden under the cryptonym of Calvidius Letus. In this first edition, Quillet made several disparaging remarks about Cardinal Mazarin. He was summoned to France, but instead of punishment, Quillet received only a mild rebuke from Mazarin, who also conferred on him the abbacy of Doudeauville. He promised to remove the offending verses, and to dedicate the poem to his new patron. The new edition, which also contained some new verses, was published the following year in Paris*. It became a very popular work and was reprinted many times. Several English translations appeared within a short period, beginning in 1710 with an anonymous translation. In 1712 Nicholas Rowe, poet, and editor of Shakespeare, issued his translation, and in 1719 a version by William Oldisworth was published.

As a medical work the poem has little merit, and repeats many of the prevalent attitudes and practices of the time. Quillet shared the common belief that the mental qualities of the mother or wet-nurse were transmitted to the infant through breast milk, as described here in the Rowe translation.

Hugh Downman. *Infancy, or The Management of Children. A Didactic Poem, in Six Books*. The sixth edition. Exeter: Printed by Trewman and Son, 1803.

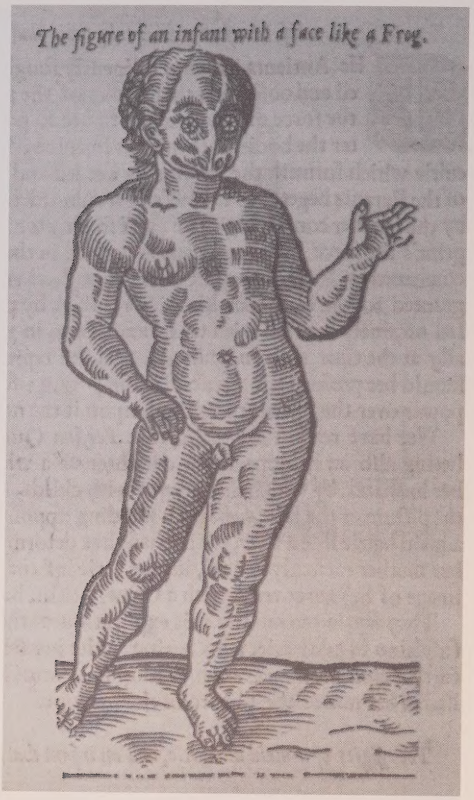
Poet, playwright, translator of Voltaire and physician, Hugh Downman (1740–1809) practised medicine in his native Exeter, after graduating from the University of Edinburgh. When illness forced him to abandon medicine, he devoted his energies to literary pursuits. His long poem *Infancy* was issued in three parts between 1774 and 1776★. It was subsequently expanded to six books and given the subtitle *The Management of Children*. In Book 6 Downman writes about the rise and progress of smallpox:

> The monster rush'd on Europe, pale dismay,
> Horror, and death rapacious in the train.
> For many a century, without controul,
> When raged his fury, by pernicious skies
> Arous'd, or propagated far and wide
> By fell contagion, he destroy'd mankind.

MONSTERS AND MARVELS

Monstrosities and abnormalities in humans have always attracted the attention of the scientist and the curious since the earliest times. Aristotle expressed the view that, although monsters departed from nature, they were nevertheless of natural origin. Pliny, too, wrote on the subject, but did not distinguish between legend and actual monstrosities. In later times monsters were believed to be of supernatural origin, either as a result of God's curse, or the product of the devil's handiwork. The scientific understanding of monsters only came about with the development of the discipline of embryology, beginning with William Harvey's *Exercitationes de Generatione Animalium* (1651)★, in which the author regarded monstrosities as the product of abnormalities in embryonic reproduction. In the seventeenth and eighteenth centuries specimens of monsters and freaks of nature were collected and displayed in cabinets of curiosities. The most famous of these cabinets was that formed by Frederik Ruysch in Amsterdam at the end of the seventeenth century, which was sold to Peter the Great of Russia, and is now housed

From Frederik Ruysch, Thesaurus Anatomicus Secundus. *Amstelodami, 1722.*



A child with a frog-like face. From A. Paré, The Workes of that Famous Chirurgion Ambrose Parey. *London, 1649.*

in the Museum of Anthropology in St. Petersburg. One of the earliest and best known works on monstrosities was written by Ambroise Paré.

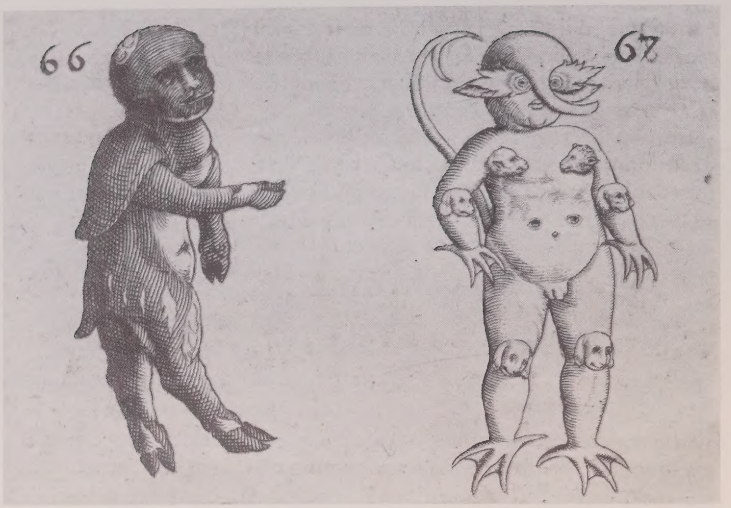
Frederik Ruysch. *Thesaurus Anatomicus Primus-[Decimus]*. Amstelodami: Apud Janssonio-Waesbergios, 1721-1729.

One of the exhibits from Ruysch's remarkable collection of anatomical specimens is a monstrously hydrocephalic fetus clutching its placenta.

Ambroise Paré. *The Workes of that Famous Chirurgion Ambrose Parey.* Translated out of Latine and Compared with the French, by Tho. Johnson. London: Printed by Richard Cotes, and Willi: Du-Gard; and are to be sold by John Clarke, 1649.

One of the earliest and best known works on monstrosities was written by Ambroise Paré (1510?–1590). The most outstanding surgeon of the sixteenth century, Paré began his career at the age of nineteen as a surgical dresser and assistant in Paris, where he acquired great skill and knowledge. His best known contributions to surgery were the discontinuation of the use of boiling oil in the treatment of gunshot wounds, and his reintroduction of the simple ligature in place of the cautery following amputation. Uneducated in Latin, Paré wrote all of his works in French. His treatise on monsters, entitled *Des Monstres et Prodiges*, formed the second part of his *Deux Livres de Chirurgie*★, first published in 1573. It was subsequently included in editions of his complete works, which were translated into Latin and English.

The work is a curious mixture of legend, superstition, and science. According to Paré, monsters "are brought forth contrarie to the common decree and order of nature". He presents an interesting taxonomy of monsters, and lists the various causes of their deformities. Certain abnormalities are visible signs of God's wrathful punishment. Others are the work of the devil, acting through the agencies of witchcraft and sorcery. Irregular births may also be due to the quality of the male semen. An abundance of seed, for example, might produce multiple births, long considered with superstition as "contrarie to nature's course", hermaphrodites, or infants with extra limbs, fingers, or other appendages. Conversely, a paucity of seed produces dwarfism, or creatures with body parts wanting or stunted. Human monsters that resemble animals are either the result of "abominable copulation with beasts", or of maternal impressions. Paré also considers the possibility of hereditary disease, and injury to the fetus through the deportment of the mother as possible causes of deformity. He goes on to give accounts of various types of monsters, often reported from hearsay without comment, most of them illustrated with woodcuts. In the exhibition illustrations depicting a child with a frog-like face and other strange birth defects are displayed. The book was very popular and Paré's accounts with their accompanying illustrations reappear in a number of books on



From J. Schenck von Grafenberg, Monstrorum Historia Memorabilia. *Francofurti, 1609.*

monstrosities by other authors of the seventeenth century, some of which are displayed:

Johann Schenck von Grafenberg. *Monstrorum Historia Memorabilia, Monstrosa Humanorum Partuum Miracula, Stupendis Conformationem Formulis ab Utero Materno Enata, Vivis Exemplis, Observationibus, & Picturis, Referens.* Francofurti: Ex Officina typographica Matthiæ Beckeri, impensis viduæ Theodori de Bry, & decorum eius filiorum, 1609.

Fortunato Liceti. *De Monstris. Ex Recensione Gerardi Blasii, qui Monstra quædam Nova & Rariora ex Recentiorum Scriptis Addidit.* Editio Novissima. Amstelodami: Sumptibus Andreæ Frisii, 1665.

Liceti reproduces most of Paré's illustrations, while adding several original engravings.

From F. Liceti, De Monstris, *in the French version of Jean Palfyn. Leiden, 1708.*

Jean Palfyn. *Description Anatomique des Parties de la Femme, qui Servent à la Generation. Avec un Traité des Monstres, de leur Causes, de leur Nature, & de leur Differences.* A Leide: Chez la veuve de Bastiaan Schouten, 1708.

The *Traité des Monstres*, announced on the title page, is, in fact, a French translation of Liceti's work.

The Miraculous Child, or Wonderfull News from Manchester. London: Printed for F.L., 1679.

This is an account of a three-year old boy from Manchester, Charles Bennet, who, it was claimed, was miraculously able to speak Greek,

Latin, and Hebrew, though he had never been taught those languages. Some believed, including the anonymous author, that his extraordinary gift had been granted by God, "the bestower of every good and perfect gift". Others believed the boy to be possessed by an evil spirit. The boy had now come to London to be presented before the King and had attracted hundreds of curious onlookers.

THE RABBIT WOMAN OF GODALMING, AND MATERNAL IMAGINATION

Nathanael St. André. *A Short Narrative of an Extraordinary Delivery of Rabbets, Perform'd by Mr. John Howard, Surgeon at Guilford.* The Second Edition. London: Printed for John Clarke, 1727.

Cyriacus Ahlers. *Some Observations Concerning the Woman of Godlyman in Surrey. Made at Guilford on Sunday, Nov. 20. 1726. Tending to Prove her Extraordinary Deliveries to be a Cheat and Imposture.* London: Printed for J. Roberts, 1726.

Sir Richard Manningham. *An Exact Diary of what was Observ'd during a Close Attendance upon Mary Toft, the Pretended Rabbet-Breeder of Godalming in Surrey, from Monday Nov. 28, to Wednesday Dec. 7 following. Together with an Account of her Confession of the Fraud.* London: Printed for Fletcher Gyles; and sold by J. Roberts, 1726.

Lemuel Gulliver. *The Anatomist Dissected, or, The Man-Midwife Finely Brought to Bed. Being an Examination of the Conduct of Mr. Andre. Touching the Late Pretended Rabbit-Bearer; as it Appears from his own Narrative.* Westminster: Printed by and for A. Campbell, 1727.

In October 1726 the medical world was shaken by the remarkable news that an illiterate mother of three children, Mary Toft, of Godalming in Surrey, had been delivered of seventeen rabbits by John Howard, a local surgeon of thirty years experience. The news came to the attention of King George I, who dispatched his physician, Nathanael St. André to confirm the startling report. After witnessing the delivery of two rabbits, St. André was satisfied that the news was true. The King sent another

Detail showing Mary Toft, from William Hogarth, "Credulity, Superstition, and Fanaticism"*, 1762.*

medical representative, Cyriacus Ahlers, who on seeing the evidence for himself, feigned credulity before Howard and Toft, but returned to London to expose the fraud. An independent examination, also on royal command, was carried out by Sir Richard Manningham, an eminent London obstetrician, and the equally famous James Douglas, who extracted a confession from the guileless Mary Toft. Exposed as a "notorious and vile cheat" she was sent to Bridewell prison. Howard was also implicated in the hoax, but charges against him were dropped.

The incident had several repercussions for the medical world. The public, enraged at its own gullibility, took out its anger on the doctors, whose credibility had been severely damaged. St. André, Ahlers, and Manningham all rushed into print in attempts to vindicate themselves. At the same time, an explosion of satirical verse, prose and prints savagely attacking physicians, was unleashed, and continued unabated for a whole month. One such satire, by Lemuel Gulliver, believed by some to be a pseudonym of Jonathan Swift, is included in the exhibition. The theme was taken up by the two leading satirists of the period, the poet

Alexander Pope, and the artist William Hogarth. In the first version of *The Dunciad* (1729), one of Pope's characters is a woman who regularly gives birth to monsters. Hogarth featured Mary Toft in his engraving "Cunicularii, or, The Wise Men of Godliman in Consultation". He returned to the rabbit woman in 1762 in "Credulity, Superstition, and Fanaticism", which is displayed in the exhibition.

James Augustus Blondel. *The Power of the Mother's Imagination over the Foetus Examin'd. In Answer to Dr. Daniel Turner's Book, Intitled* A Defence of the XIIth Chapter of the First Part of a Treatise, De Morbis Cutaneis. London: Sold by John Brotherton, 1729.

The events at Godalming also focussed attention on the medical theory of maternal imagination or impressions, that had held sway in medicine since ancient times. According to this notion, a mother's imagination had the power to misshape or to produce gross abnormalities in the fetus. Hippocrates is said to have saved the virtue of a white woman who had given birth to a black child, by pointing out that there was a picture of a black man on the wall of her bed-chamber. An example of this supposed power is related by St. André in his account, in which he claims that Mary Toft had told him that

> as she was weeding in a field, she saw a rabbet spring up near her, after which she ran ...; this set her a longing for rabbets, being then, as she thought, five weeks gone with child ... The same night she dreamt that she was in a field with those two rabbets in her lap, and awaked with a sick fit, which lasted till morning; from that time, for above three months, she had a constant and strong desire to eat rabbets

Five months after Mary Toft's exposure, James Blondel (d. 1734) published anonymously a work entitled, *The Strength of Imagination in Pregnant Women Examin'd*. Doubts about the efficacy of maternal imagination had been voiced before, but Blondel's refutation of the theory was the first systematic examination based on the physiology of reproduction. Daniel Turner, suspecting that Blondel's remarks were aimed at him personally, retorted with a blistering attack on Blondel. In turn, Blondel responded with *The Power of Mother's Imagination over the*

Foetus Examin'd, which critically examined each of Turner's instances of maternal imagination, as described in his *De Morbis Cutaneis*, originally issued in 1714. He cites Turner's account, taken from Paré (see above), of an infant born in France with the face of frog – the result, it was said, of the mother having held a frog in her hand to allay a fever at the time of conception. Blondel asks with a touch of irony, "could frogs strike terrour in a woman, who, after the custom of that country, used to make a fricassey of them, instead of chickens?" The Turner-Blondel debate continued, and was taken up by others after Blondel's death in 1734 until well into the nineteenth century.

SOURCES

Many books and articles have been consulted in preparing this exhibition. The most useful sources were:

Payne, George Henry. *The Child in Human Progress.* New York and London: G.P. Putnam, 1916.

Pediatrics of the Past. An Anthology compiled & edited by John Ruhräh. New York: P.B. Hoeber, 1925.

Caulfield, Ernest. *The Infant Welfare Movement in the Eighteenth Century.* With a foreword by George Frederic Still. New York: P.B. Hoeber, 1931.

Still, George Frederic. *The History of Paediatrics: the Progress of the Study of Diseases of Children up to the End of the XVIIIth Century.* London: Oxford University Press, 1931.

Nichols, R.H., and Wray, F.A. *The History of the Foundling Hospital.* London: Oxford University Press, 1935.

Mettler, Cecilia C. *History of Medicine.* Philadelphia: Blakiston Co., 1947.

Garrison, Fielding H. and Abt, Arthur F. *Abt-Garrison History of Pediatrics.* Philadelphia and London: W.B. Saunders, 1965.

Franklin, A. White. "Paediatrics": in *British Contributions to Medical Science. The Woodward-Wellcome Symposium, University of British Columbia 1970.* Edited by William C. Gibson. London: Wellcome Institute of the History of Medicine, 1971.

Spaulding, Mary and Welch, Penny. *Nurturing Yesterday's Child: a Portrayal of the Drake Collection of Paediatric History.* Toronto: Natural Heritage/Natural History, 1991.

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